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NORTH CAUCASUS - A RUSSIAN GRANARY . . . . .

By Lazar Volin*

Although much has been written since the beginning of the present war about the Caucasian oil fields, little attention has been given to the grain fields that make North Caucasus part of the southern Russian "bread basket," often associated in the public mind with the Ukraine only. North Caucasus is one of the richest agricultural areas of the Soviet Union. Considerable wheat and barley surpluses and various oilseeds and other industrial crops are produced here. The present article surveys very briefly the agricultural economy and resources of this important region before the outbreak of the war.

THE LAND AND THE PEOPLE

North of the Caucasus Mountains along the Rivers Don, Kuban, and Terek, lies one of the richest agricultural regions of the Soviet Union. It is known as North Caucasus and is separated by the high Caucasus Mountains in the south from Transcaucasia (Georgia, Azerbaidzhan, and Armenian Soviet Republics), beyond which are Turkey and Iran. On the east it is bounded by the Caspian Sea and on the west by the Black and Azov Seas. The narrow strait of Kerch connecting the two latter seas separates North Caucasus from the Crimean Peninsula. In the north, the region wedges in between the Ukraine and the Lower Volga area.

Not all of the territory included here under North Caucasus geographically belongs to the Caucasian isthmus. The present Rostov Province, which under the Empire was part of the Don Cossack Province, is outside of the Caucasus proper. Under the Soviet regime until 1934 this whole region (except for the Dagestan Republic, although it is a part of Caucasus proper) formed one administrative unit known as North Caucasus. Since 1934, however, this territory has been subdivided several times, and the term North Caucasus is no longer used administratively. But from an agro-economic standpoint, it is still useful to treat this whole large area as a single region. North Caucasus for purposes of the present article, therefore, includes the following administrative or political divisions: The Provinces (oblasts or krai) of Rostov, Krasnodar, and Ordzhonikidze and the national, so-called Autonomous, Republics of Kabardino-Balkarian, North-Osetian, Checheno-Ingushian, and Dagestan (fig. 1).

North Caucasus is nearly equal in size to Iowa and Kansas combined. It is mountainous in the south, but a large part of the area is a plain extending northward from the foothills and mountain ranges of the Caucasus and sloping in its eastern part toward the Caspian Sea and in its western toward the Azov and Black Seas. In the north, the Caucasian plain merges with the southeastern Russian steppes..

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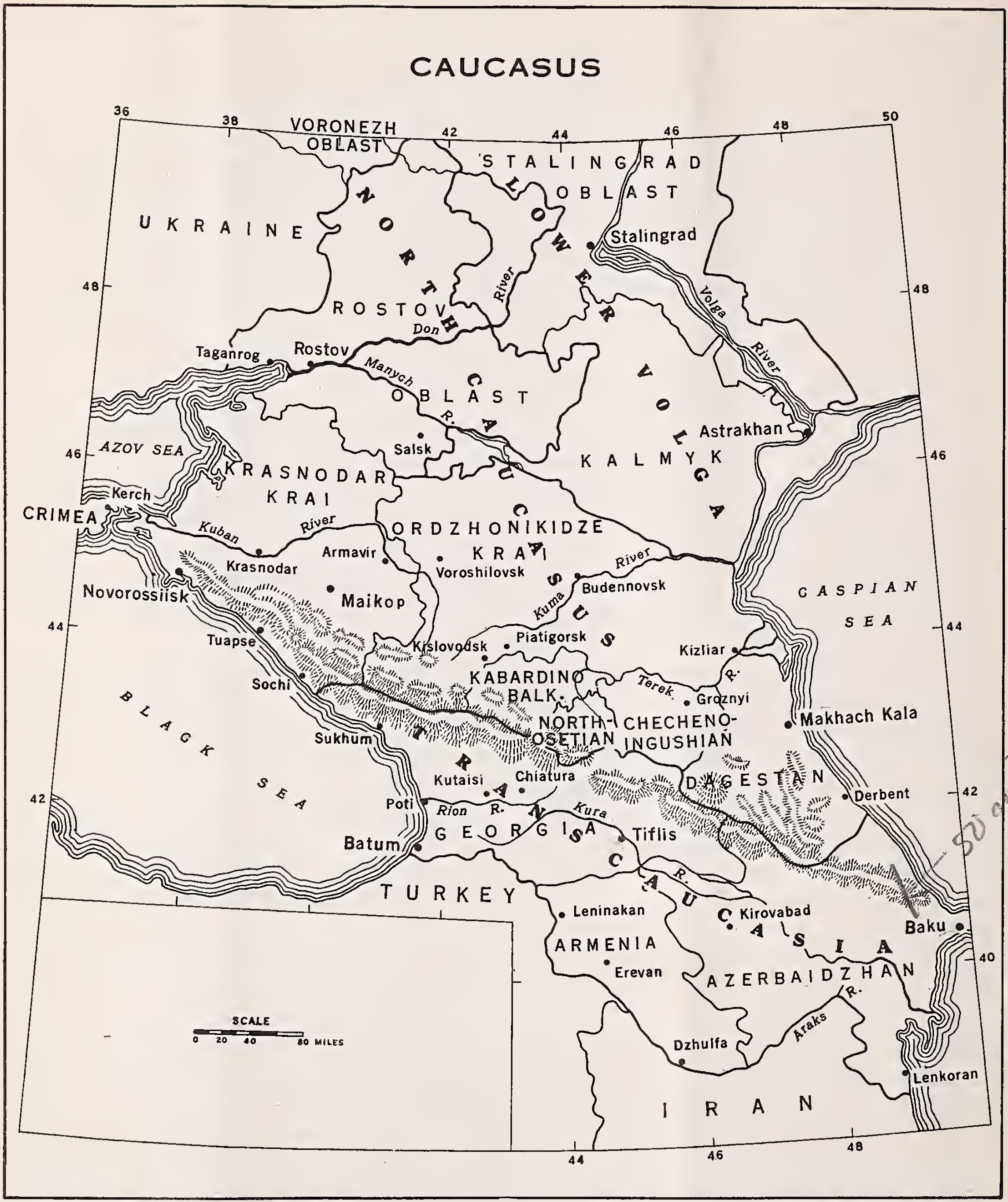

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FIGURE 1.—The Caucasus, showing administrative subdivisions.

Climatically, North Caucasus is a region of considerable contrasts. It comprises some of the most humid sections of Russia and some very dry areas. Thus in the extreme southwestern part on the Black Sea coast around the city of Sochi, the annual precipitation averages over 55 inches, whereas near the Caspian Sea it is only 14 inches or less. In general, the farther east and north, the drier becomes the climate until the very arid zone near the Caspian Sea is reached. The most favorable climatic conditions for agriculture are in the southwestern and central parts of the region, especially in the basin of the Kuban River (Krasnodar Province). The annual average precipitation at Rostov, for instance, is nearly 19 inches, at Krasnodar about 26 inches, and at Stavropol about 25 inches.

The winters are relatively mild. The average growing period around Rostov is 184 days and around Krasnodar 190 days, compared with 179 at Dubuque, Iowa, 187 at Indianapolis and Peoria, and 193 at Springfield, Mo. On the Black Sea coast at Novorossiisk, the growing period is 232 days, which is the same as at Abilene, Tex., and slightly less than that of Augusta and Macon, Ga. At Sochi the average growing period is 288 days, which is just about that of Fresno, Calif.

Not only climatic but soil conditions, too, are favorable in the western and central parts of North Caucasus, where fertile black soils (various types of the Chernozem) prevail. In the drier regions, they give way to chestnut soils, which also yield good crops when moisture is adequate. The semiarid and arid zones in the eastern part of the region have the poorest soils.

Of the total land area of North Caucasus, arable land constituted, according to a 1934 estimate, over 44 percent, and more than 45 percent if orchards, vineyards, and gardens were added. This is a much smaller proportion than in the adjoining Ukraine where the arable land, exclusive of gardens and orchards, constituted 64 percent. On the other hand, a much larger proportion of land in North Caucasus was in meadows and pastures than in the Ukraine, 31.5 and less than 10 percent, respectively. Forest and brush land constituted nearly 10 percent in North Caucasus as against 8.4 percent in the Ukraine. See table 1.

TABLE 1.–*Land utilization in North Caucasus, 1934*

TYPE OF LAND	AREA	PERCENTAGE OF TOTAL AREA
	1,000 acres	*Percent*
Farmsteads	2,402	2.8
Arable land	38,444	44.3
Orchards, vineyards, and gardens	694	.8
Meadows	7,359	8.5
Pastures	19,961	23.0
Forest and brush land	8,614	9.9
Marshes	1,292	1.5
Other land	7,969	9.2
Total	86,735	100.0

For centuries the region, which is located on the historic road from Asia into Europe, was subjected to successive invasions; and these, together with more recent peaceful colonization, explain the motley national character of the population. The first Russian settlers were the Cossacks, who had fled from oppression in the older regions of Russia to the territories of the rivers Don, Terek, and Kuban. The Cossacks were later utilized by the czars to guard these frontier lines and extend the Russian conquest, which was not ended as far as the mountainous region of the Caucasus was concerned until the middle of the nineteenth century. The end of the Caucasian wars, the emancipation of peasants from serfdom in Russia, the growing pressure on land in the central regions, the advent of railroads, and the proximity to the ports of the Azov and Black Seas all served to stimulate during the second half of the nineteenth century a large-scale colonization and rapid agricultural development in North Caucasus, resembling in many respects that of the American West.

Of the 10 million people inhabiting the region, 70 percent lived on the land, according to the census of January 17, 1939. Even in Rostov Province, the most industrialized of all, since it includes the eastern part of the Donets coal-mining district and the large city of Rostov, 56 percent of the population was rural.

FARM ORGANIZATION

North Caucasus was one of the first regions to be subjected by the Soviet Government to large-scale agricultural collectivization, which was accompanied by a bitter struggle between the Kremlin and the local Cossack population. In 1928 the region had nearly 1,600,000 small peasant farms. By 1938 these were pooled into less than 7,600 collective farms, which accounted for about 80 percent of the total crop acreage, and 318 state farms, with 15 percent of the total. Individual holdings occupied less than 5 percent of the sown area and were mostly in the more mountainous parts of the region.

TABLE 2.–*Peasant households and sown area in collectives in North Caucasus, 1938*

DISTRICT	COLLECTIVES	PEASANT HOUSEHOLDS IN COLLECTIVES		AVERAGE NUMBER OF PEASANT HOUSEHOLDS IN A COLLECTIVE	SOWN AREA PER COLLECTIVE	SOWN AREA PER HOUSEHOLD
		NUMBER	PERCENTAGE OF TOTAL HOUSEHOLDS			
	Number	*Thousands*	*Percent*	*Number*	*Acres*	*Acres*
Rostov	1,847	251	99.1	136	4,981	37
Krasnodar	2,421	373	98.7	154	3,150	20
Ordzhonikidze	1,436	227	95.9	158	4,473	28
Kabardino-Balkarian	167	45	99.3	271	3,719	14
North-Osetian	119	28	99.6	234	2,267	10
Checheno-Ingushian	469	74	92.7	157	1,342	7
Dagestan	1,124	144	89.9	129	470	4
Total or average	7,583	1,142	96.7	151	3,336	25

Collective farms in the North Caucasus are quite large. In 1938 the average collective farm for the Soviet Union as a whole included 78 peasant households and a sown area of a little less than 1,200 acres. In the North Caucasus, however, the number of households per collective ranged from 129 to 271, and the sown area in all the districts, except the mountainous Dagestan Republic, exceeded the average, in some Provinces even several fold. See table 2. Members of collective farms are also entitled to small plots for kitchen gardens, etc., the competition of which with collective sowings for the farmer's time had given considerable concern to the authorities.[1] North Caucasus is also a region of very large state farms, so-called sovkhozy.[2] It is here, for instance, that one of the famous Soviet "grain factories," the large state farm known as Gigant, is located. Gigant had in 1930 a total area of 469,000 acres, of which 279,000 acres were under crops. But like other huge state farms, it has since been considerably deflated and now has a total area of 120,000 acres, of which in 1937 about 54,000 were under crops, largely wheat.

[1] See VOLIN, LAZAR. THE RUSSIAN PEASANT HOUSEHOLD UNDER THE MIR AND THE COLLECTIVE FARM SYSTEM. Foreign Agr. 4: 133-146. 1940.

[2] See LADEJINSKY, W. STATE GRAIN FARMS. Foreign Agr. 2: [439]-454.

Originally the large state farms were narrowly specialized, but greater diversification has been emphasized by the Government in recent years. Gigant, for instance, had in 1937 or 1938, 3,200 head of cattle, 5,400 sheep, 700 hogs, and 260 horses. The state farm called Stalin in Krasnodar Province, with over 57,000 acres of land, has vineyards, fruit orchards, vegetable gardens, a distillery, a flour mill, a wine cellar, a livestock-fattening center for 5,000 head, etc.[3] In general, the area under state farms in the North Caucasus was reduced from a peak figure of about 5,400,000 acres in 1935 to 4,600,000 acres in 1938 (table 3).

TABLE 3.—*Area sown, by type of farm, in North Caucasus, 1938*

DISTRICT	COLLECTIVE		STATE		INDIVIDUAL		TOTAL	
	AREA	PERCENTAGE OF TOTAL	AREA	PERCENTAGE OF TOTAL	AREA	PERCENTAGE OF TOTAL	AREA	PERCENTAGE OF TOTAL
	1,000 acres	*Percent*	*1,000 acres*	*Percent*	*1,000 acres*	*Percent*	*1,000 acres*	*Percent*
Rostov	9,199	80	1,914	17	325	3	11,438	100
Krasnodar	7,627	81	1,397	15	397	4	9,421	100
Ordzhonikidze	6,424	83	1,116	14	209	3	7,749	100
Kabardino-Balkarian	622	88	64	9	23	3	709	100
North-Osetian	270	88	11	4	25	8	306	100
Checheno-Ingushian	629	70	77	8	196	22	902	100
Dagestan	529	62	38	4	285	34	852	100
Total North Caucasus	25,300	80	4,617	15	1,460	5	31,377	100

As was to be expected under the Soviet collective system, mechanization of agriculture on the steppes of North Caucasus made great strides. In 1938 there were nearly 46,000 tractors, 18,000 combines, and 19,000 trucks in over 500 Government machine tractor stations, which serve the collective farms and state farms (table 4).

TABLE 4.—*Number of farms and agricultural machinery in North Caucasus, 1938*

DISTRICT	COLLECTIVES	MACHINE-TRACTOR STATIONS	STATE FARMS	TRACTORS	COMBINES	TRUCKS
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Rostov	1,847	151	99	15,386	6,769	5,161
Krasnodar	2,421	162	127	14,392	5,359	7,251
Ordzhonikidze	1,436	135	60	12,230	4,669	5,099
Kabardino-Balkarian	167	16	11	1,277	318	576
North-Osetian	119	8	1	611	56	281
Checheno-Ingushian	469	19	9	1,083	340	335
Dagestan	1,124	13	11	870	161	373
Total North Caucasus	7,583	504	318	45,849	17,672	19,076

The extent to which various field operations are performed by tractor power on collective farms is shown in table 5. With some exceptions in the mountainous eastern republics of Checheno-Ingushian and Dagestan, the percentage of mechanization in North Caucasus is well above the average for the Soviet Union as a whole. Plowing and sowing of spring grain in the Krasnodar and Ordzhonikidze Provinces is done almost entirely by tractors. Combines are also widely used on the North Caucasian steppes. The terrain and proximity of oil supplies[4] favor the use of mechanical power in North Caucasian agriculture. But apart from any advantages of mechanization,[5] the employment of tractors was spurred by the sharp decline in the number of horses in the region, from over 2 million in 1929 to about 830,000 in 1934, during the early years of collectivization and "liquidation" of the kulaki, or well-to-do farmers.

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[3] Socialist Agr., No. 2, Feb. 1939, pp. 48-49.

TABLE 5.–*Percentage of various field operations performed by tractors on collective farms in North Caucasus, 1937*

DISTRICT	SPRING			HARVESTING		FALL	
	PLOWING	SOWING		GRAINS AND LEGUMES	WITH COMBINES ONLY	SOWING	PLOWING
		TOTAL	GRAINS				
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Rostov	83.0	83.6	94.0	83.5	62.1	98.8	82.1
Krasnodar	100.0	88.2	99.1	78.3	61.7	90.1	95.3
Ordzhonikidze	97.8	84.3	100.0	90.5	66.9	70.2	91.3
Kabardino-Balkarian	83.4	52.8	68.2	34.9	24.2	80.2	96.7
North-Osetian	90.8	55.8	3.6	23.9	10.6	90.7	98.4
Checheno-Ingushian	69.8	47.0	53.6	38.6	33.2	71.3	100.0
Dagestan	60.2	18.0	19.1	8.4	4.3	33.0	25.3
All Soviet Union	73.9	42.5	46.4	39.3	33.6	45.0	67.4

CROPS

In North Caucasus, as in the Ukraine, wheat is the leading crop, accounting for over a third of the total area under crops. The acreage occupied by wheat is in size roughly comparable to that under this crop in the State of Kansas. Winter varieties greatly predominate, and nearly a fourth of the total Russian winter-wheat acreage is in North Caucasus. Thus it is the most important Russian winter-wheat region after the Ukraine. Spring wheat at present is relatively unimportant except in the northern and eastern parts of Rostov Province where climatic conditions are not favorable to the growing of winter varieties. Formerly, however, spring wheat played a much more important role in the crop system. The area under this crop decreased between 1927 and 1938 by 40 percent. Among the spring-wheat varieties of North Caucasus must be mentioned the famous Kubanka. It was introduced at the turn of the century in the United States where it is "still recognized as the most widely adapted durum wheat and is the standard durum variety for judging the improvement of new durum varieties developed by selection or hybridization."[6]

The winter-wheat acreage fluctuated between the low of less than 5.5 million acres in 1928, when winter-killing was extensive, and the high of more than 7.7 million acres in 1937. The record 1927 area of over 9 million acres, however, was not reached again during the period up to 1938, the last year for which data are available. The wheat production of North Caucasus exceeds 100 million bushels, and in good years considerably so, accounting roughly for over 10 percent of total Russian wheat production.

[4] The most important oil fields in North Caucasus are in the eastern part near the city of Groznyi. In 1938 they accounted for about 9 percent of total Russian production. Next are the fields in the western part of the region, in Krasnodar Province, with 7 percent of the total production. The bulk of Russian oil output, however, comes from the fields of Baku in Transcaucasia, with 74 percent of the total in 1938.

[5] It should be borne in mind that, in general, the introduction of tractors and combines in Soviet agriculture is a matter of Government policy, which is not governed primarily by cost-price factors.

[6] CLARK, J. ALLEN. IMPROVEMENT IN WHEAT. U. S. Dept. Agr. Yearbook 1936: 207-302, illus. 1936.

TABLE 6.—*Area under principal crops in North Caucasus, by districts, 1938*

CROP	ROSTOV		KRASNODAR		ORDZHONIKIDZE		KABARDINO-BALKARIAN		NORTH-OSETIAN		CHECHENO-INGUSHIAN		DAGESTAN		TOTAL NORTH CAUCASUS	
	AREA	PER-CENT-AGE OF TOTAL	AREA	PER-CENT-AGE OF TOTAL	AREA	PER-CENT-AGE OF TOTAL	AREA	PER-CENT-AGE OF TOTAL	AREA	PER-CENT-AGE OF TOTAL	AREA	PER-CENT-AGE OF TOTAL	AREA	PER-CENT-AGE OF TOTAL	AREA	PERCENT-AGE OF SOVIET UNION
	1,000 acres	*Per-cent*	*1,000 acres*	*Per-cent*	*1,000 acres*	*Per-cent*	*1,000 acres*	*Per-cent*	*1,000 acres*	*Per-cent*	*1,000 acres*	*Per-cent*	*1,000 acres*	*Per-cent*	*1,000 acres*	*Per-cent*
Wheat:																
Winter	1,802	15.8	3,339	35.5	2,761	35.6	179	25.3	65	21.2	230	25.5	289	33.9	8,665	24.0
Spring	2,469	21.6	369	3.9	16	.2	-	-	2	.7	7	.7	32	3.8	2,895	4.4
Total wheat	4,271	37.4	3,708	39.4	2,777	35.8	179	25.3	67	21.9	237	26.2	321	37.7	11,560	11.3
Oats	368	3.2	415	4.4	557	7.2	45	6.3	3	1.0	53	5.9	26	3.1	1,467	3.3
Rye, winter	1,225	10.7	13	.1	38	.5	3	.4	2	.5	(1)	(2)	21	2.5	1,302	2.5
Barley:																
Winter	1	(2)	390	4.1	219	2.8	20	2.8	1	.2	27	3.0	45	5.3	703	4.1
Spring	1,796	15.7	862	9.2	1,039	13.4	3	.5	1	.7	7	.9	102	11.9	3,810	18.1
Total barley	1,797	15.7	1,252	13.3	1,258	16.2	23	3.3	2	.9	34	3.9	147	17.2	4,513	19.8
Corn	484	4.2	900	9.6	264	3.4	195	27.5	129	42.3	357	39.6	151	17.7	2,480	38.5
Rice	(1)	(2)	18	.2	1	.1	-	-	-	-	(1)	(2)	7	.8	26	6.4
Potatoes	184	1.6	138	1.5	97	1.2	24	3.4	34	11.3	26	2.9	20	2.4	523	2.9
Vegetables	92	.8	153	1.6	65	.8	10	1.4	11	3.5	17	1.9	13	1.5	361	11.1
Melons	145	1.3	89	.9	80	1.0	11	1.6	2	.7	15	1.6	12	1.4	354	20.4
Legumes	25	.2	25	.3	23	.3	1	.2	3	.8	2	.2	22	2.5	101	1.6
Castor-beans	32	.3	260	2.8	99	1.3	-	-	-	-	-	-	-	-	391	69.2
Sunflower seed	655	5.7	650	6.9	402	5.2	73	10.2	1	.2	27	3.0	5	.6	1,813	23.3
Tobacco	-	-	67	.7	-	-	-	-	-	-	-	-	-	-	67	28.4
Cotton	36	.3	127	1.3	310	4.0	-	-	-	-	18	1.9	34	4.0	525	10.2
Forage and hay crops	1,652	14.5	1,302	13.8	1,384	17.9	89	12.6	25	8.1	93	10.4	28	3.3	4,573	13.1
Other crops	472	4.1	304	3.2	394	5.1	56	7.8	27	8.8	23	2.5	45	5.3	1,321	4.2
Total	11,438	100.0	9,421	100.0	7,749	100.0	709	100.0	306	100.0	902	100.0	852	100.0	31,377	9.3

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[1] Less than 500 acres.
[2] Less than .05 percent.

TABLE 7.–*Area sown to principal crops in North Caucasus, 1927, 1933, and 1938*

CROP	1927	1933	1938	PERCENTAGE 1938 IS OF–	
				1927	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*Percent*	*Percent*
Wheat:					
Winter	9,016.4	5,836.0	8,664.9	96.1	148.5
Spring	4,812.3	4,217.7	2,894.8	60.2	68.6
Total wheat	13,828.7	10,053.7	11,559.7	83.6	109.7
Oats	501.6	1,130.0	1,467.5	292.6	129.9
Rye, winter	1,230.3	2,223.6	1,302.1	105.8	58.6
Barley:					
Winter	340.2	232.5	702.7	206.6	302.3
Spring	2,668.2	2,343.0	3,810.7	142.8	162.6
Total barley	3,008.4	2,575.5	4,513.4	150.0	175.2
Corn	2,091.7	4,157.4	2,479.5	118.5	59.6
Potatoes	321.2	307.6	523.4	163.0	170.2
Sunflower seed	2,247.6	2,503.9	1,813.4	80.7	72.4
Tobacco	57.8	75.8	67.0	115.9	88.4
Other crops	2,515.9	5,145.3	7,651.1	304.1	148.7
Total crops	25,803.2	28,172.8	31,377.1	121.6	111.4

Unlike wheat, rye, which is a staple bread grain of northern and central Russia, is insignificant in North Caucasus, and so is oats. On the other hand, over a fifth of the total Russian acreage of barley is in this region, making it second in importance after the Ukraine. More than a third of the Russian corn acreage was in North Caucasus in 1938, but it was on the decline. Some rice is also grown in this region, but this crop is insignificant, especially when compared with that of the principal Russian rice-growing areas in Transcaucasia and Turkestan.

North Caucasus was long one of the leading Russian grain-exporting regions. The proximity to the Black Sea and Azov ports facilitated the movement of grain. In the 5-year period 1930-31 to 1934-35, for which data are available, North Caucasus accounted for 26 percent of the Russian export shipment of wheat and 19 percent of that of barley.[7] Most of these exports passed through the Black Sea port of Novorossiisk. In recent years North Caucasus has been even more important as a source of grain for the deficit domestic regions, including Turkestan beyond the Caspian Sea and Transcaucasia. In 1937, for instance, net shipments of all grain from North Caucasus to other regions of Russia amounted to about 1,500,000 short tons. The region also has the advantage of an early harvest, which for small grains is largely complete by the end of July.

Among the technical crops grown in North Caucasus, sunflower seed occupies a foremost place. It is a source of an edible oil that plays a highly important part in the Russian fat supply. North Caucasus is the leading producing region, accounting for nearly a fourth of the total Russian sunflower-seed acreage. The area under this crop, however, decreased by nearly 20 percent between 1927 and 1938. Among other oilseed crops must be mentioned the castor-bean, with about 70 percent of the Russian acreage concentrated in North Caucasus. The oil from this plant has an important use in aviation. Soybeans, which were introduced in the 1920's, registered a decrease in acreage from about 110,000 acres in 1932 to 72,000 in 1938.

North Caucasus (the Kuban area) leads in the acreage under tobacco of the so-called Oriental types. It accounts for nearly 30 percent of the Russian tobacco acreage, exceeding such important tobacco regions as the Georgian Republic and the Crimea. A crop that has been introduced in North Caucasus during the last decade is cotton, grown mostly in the eastern part of the region. Here, unlike the main cotton-growing areas of Turkestan and Transcaucasia,[8] the crop is not grown under irrigation and the yields are quite low. In 1935, for instance, the yields were 70 to 80 percent less than in the irrigated cotton-growing regions. Another fiber crop introduced into North Caucasus during the past decade is hemp. In 1938, 111,000 acres were planted to this crop. Also, North Caucasus, particularly the Kuban area, is an important fruit-growing region.

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[7] See p. 12 of VOLIN, LAZAR. GRAIN EXPORTS FROM THE SOVIET UNION. Foreign Agr. 5: 205-214, illus. 1941.

The total crop area in North Caucasus registered a very substantial increase in the 1930's. In 1938 it was 22 percent larger than in 1927 and 11 percent above 1933. In 1927-28 there were approximately 339 acres of crops per 100 of rural population and in 1938-39, 431 acres, an increase of more than a fourth. Of the total arable land, estimated in 1934 at over 38 million acres, 82 percent was under crops in 1938 as against 73 percent in 1933. As compared with the latter year, winter wheat, oats, barley, potatoes, and cotton all showed increases in acreage. Winter rye acreage, although larger in 1938 than in 1927, was 40 percent under that of 1933. Spring wheat, corn, tobacco, and sunflower seed declined.

LIVESTOCK

Until the last decades of the nineteenth century, animal husbandry rather than crop production dominated the farm pattern of North Caucasus.[9] Increased plowing of land for crops relegated livestock farming to a secondary place except in the semiarid eastern and northern sections of the region and in the mountainous south. But North Caucasus remained, both before and after the World War, an important surplus-producing livestock region, shipping meat and live animals north.

TABLE 8.—*Number of livestock in North Caucasus, January 1, 1938*

DISTRICT	HORSES	CATTLE	HOGS	SHEEP AND GOATS
	Thousands	*Thousands*	*Thousands*	*Thousands*
Rostov	223.3	1,149.6	553.7	1,411.5
Krasnodar	317.4	1,021.7	918.5	732.4
Ordzhonikidze	233.1	900.8	379.6	2,721.0
Kabardino-Balkarian	65.8	188.4	42.6	365.2
North-Osetian	22.0	87.8	49.1	134.8
Checheno-Ingushian	60.5	324.6	31.8	343.6
Dagestan	78.4	605.2	13.7	1,680.8
Total North Caucasus	1,000.5	4,278.1	1,989.0	7,389.3

Collectivization of agriculture and liquidation of the kulaki in the early thirties dealt a severe blow to the livestock industry of North Caucasus, as elsewhere in the Soviet Union. The sharp reduction in the number of horses has already been mentioned. Between the summer of 1928 and the summer of 1934, the number of cattle, sheep, and goats decreased by more than 40 percent, and the number of hogs by 5 percent. Although livestock numbers have increased, the 1928 level was not recovered by the winter of 1938 (the last date for which detailed figures are available), except for hogs. By the summer of 1936 there were already 50 percent more hogs than in 1928. In spite of the far-reaching agricultural collectivization, in 1938 more than 60 percent of the cattle and 50 percent of the hogs were individually owned by members of collective farms and others. Horses, sheep, and goats, however, were largely collectively owned. The Soviet policy in later years emphasized more thorough collectivization of livestock; and, if figures for a more recent year were available, they would undoubtedly show a larger proportion of livestock owned collectively.

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[8] MICHAEL, LOUIS. COTTON GROWING IN THE SOVIET UNION. Foreign Agr. 2: [353]-382, illus. 1938.

[9] KONSTANTINOV, O. A. NORTH CAUCASUS . . . *In* Economic Geography of the U.S.S.R. by Regions, edited by Wolf, M. B., and Mebus, G. A., 147 pp., illus. Moscow. 1928. See p. 46.

SUMMARY

This bird's-eye survey of North Caucasian agriculture indicates its diversified character. The region is an important producer of wheat, barley, sunflower seed, castor-beans, tobacco, and other crops. Before the war it played a highly significant part in the food supply and in the export trade of the Soviet Union, which was facilitated by convenient access to sea communications. The war has doubtless greatly enhanced the contribution of North Caucasus to the national food supply because so many of the other fertile regions of central and southern Russia have been overrun by the Nazis. The early harvesting period and the advantageous geographic location of the region, which links the Soviet fighting front in the eastern Ukraine with the oil-rich but grain-deficit Transcaucasia, makes of North Caucasus a food base of first importance.

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THE FOOD SUPPLY OF INDIA . . . . .

By W. I. Ladejinsky*

How to secure adequate food supplies for its huge population has been India's all-important problem for many years past. It is becoming more acute with the rapid increase in population on the one hand and the failure of agricultural production to keep pace with it on the other. That this is the real crux of India's food situation is shown by an analysis of the output of food crops over a period of years. The possibility of adequate or even surplus production in the future, however, is not precluded, but such levels of production would appear to depend primarily on a better utilization of the land already in agricultural use. This, in turn, presupposes improvements in the field of education, the adoption of basic principles of agricultural science, and a more liberal interpretation of the social, religious, and political customs and traditions of the country.

FACTORS AFFECTING THE FOOD SUPPLY

The total area of India - without Burma[1] - is estimated at 1,575,000 square miles, or 1,008 million acres. The greater part of this land is not cultivated; in 1936-37 only 29 percent of the country's total area was actually under crops. Thus India has vast tracts of arable land as yet uncultivated, though it is a country where farm-holdings are extremely small and the hunger for more land is ever-present. The explanation lies largely in the inadequate supply of water, for considerable sections of land are well above average in fertility. Of all the factors in India that limit the extension of land under cultivation and the yield per acre, lack of water is the most important. The source of 90 percent of the rainfall is the southwest monsoon, lasting from June through September. Precipitation is not evenly distributed, ranging from well over 100 inches to not more than 3 inches. For this reason the country is divided *(13, p. 17)*[2] into-

(a) protected areas, or areas of abundant rainfall, including Burma, Assam, Eastern Bengal, and the Western Ghauts; *(b)* precarious areas, or tracts of uncertain rainfall, including Bombay, Udaipur, and Ajmer; and *(c)* regions of drought, *e.g.* Sind, Western Rajputana, and Western Punjab.

Irrigation, which is used for nearly one-fifth of the total area under crops in India, has done much to alleviate the situation. There still remains, however, four-fifths of the cultivated land subject to the sharp transition from dry to wet season and the occasional failure of the monsoon rain to provide sufficient precipitation

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* Office of Foreign Agricultural Relations.

[1] All figures cited, unless otherwise specified, are for India excluding Burma.

[2] Italic numbers in parentheses refer to Literature Cited, p. 281.

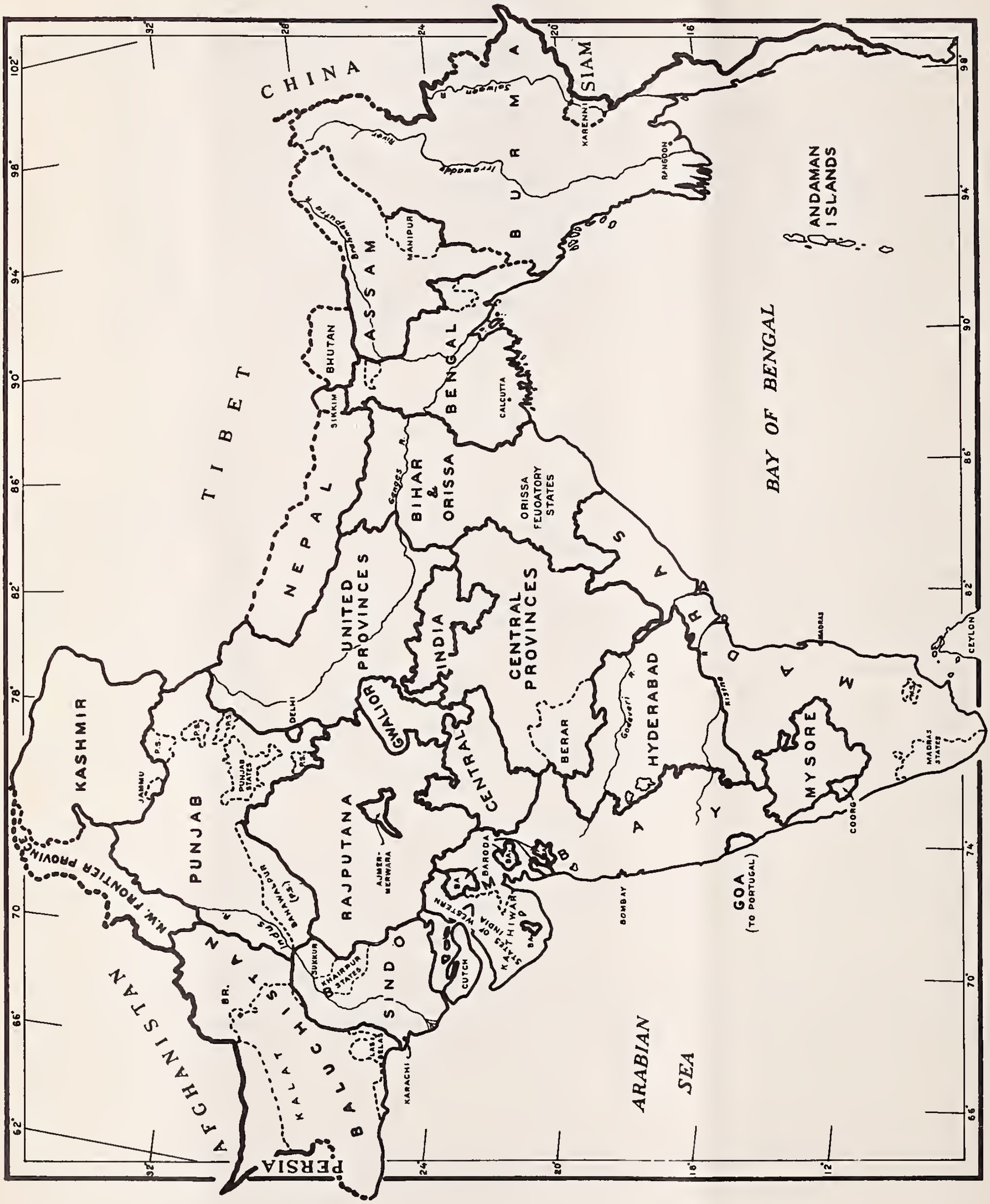

FIGURE 1.-India: British Provinces and Indian States.

over extensive areas. The net result is that even today millions of Indian farmers live in the shadow of periodically recurring crop failures caused by drought, and agriculture in India continues to remain a "gamble on the monsoon." Hence the difficulty of breaking new land into cultivation (unless artificially irrigated) is one of the important reasons of the low yields obtained in many sections of the country.

Aside from insufficient precipitation and its adverse effect on productivity, it should be noted that most of the land is poorly cultivated by primitive and inefficient tools. The peasant still sows and reaps by hand; he does not make full use of the available supply of manure from livestock and seldom uses artificial fertilizers; he practices little scientific crop rotation and uses badly mixed seed; and his cattle are small and poorly fed, with proportionately low draught power.

What these cultural practices mean in terms of crop output will be indicated in some detail in subsequent pages, but for the present the state of animal husbandry will serve as one of the examples of what ails Indian agriculture. Because of the many and indispensable functions assigned to livestock by Indian peasants - "the cow and the bullock have on their patient back the whole structure of Indian agriculture" - their economy is dependent upon the quality of this livestock. But the livestock population, estimated in 1936-37 at 276 million, is of very poor quality indeed; it is small-sized, inefficient, and subject to all kinds of contagious diseases. The gradual expansion of the cultivated area at the expense of pastures in the congested areas of India has affected adversely the animal husbandry. It has been estimated that the fodder produced in India is fully sufficient for only two-fifths of the livestock.

Despite the serious handicaps under which Indian agriculture labors, it is called upon to sustain an ever-increasing population. Table 1 shows the increase in population in India since the seventeenth century.

TABLE 1.–*Population and population growth in India, including Burma, 1600-1941*

YEAR	POPULATION	INCREASE DUE TO–		RATE OF POPULATION GROWTH IN SUCCESSIVE INTERCENSAL PERIODS
		INCLUSION OF NEW AREAS	POPULATION GROWTH	
	Millions	*Millions*	*Millions*	*Percent*
1600	100	-	-	-
1750	130	-	-	-
1850	150	-	-	-
1872	206	-	-	-
1881	254	34	14	6.8
1891	287	5	28	11.0
1901	294	3	4	1.4
1911	315	2	19	6.4
1921	319	-	4	1.2
1931	353	-	34	10.6
1941	406	-	53	15.0

1600-1931 from Mukerjee *(8, p. 3)*; 1941, official Indian census for 1941, 389 millions, and estimate for Burma, 17 millions.

In consequence of the rise in population and the tendency to concentrate in the more fertile regions *(8, pp. 3-4)*-

> the Dacca Division, Eastern Bengal, has a mean density of 935, and in Munshiganj sub-division the estraordinary figure of 2,413 and in Lokajang no less than 3,278 per square mile have been reached.

In the southwestern part of Dacca and some of the adjoining sections "the population is in no area less than 1,000 to the square mile and reaches as much as 3,275" *(8, p. 4)*.

Much has been said in recent years about the industrialization of India, but now as in the past the country is predominently agricultural; it has been estimated that almost 75 percent of the people depend upon the land for a livelihood. Nearly 80 percent of the national income is derived from agriculture as against 18 percent from industry *(8, p. 28)*. The latter has failed to absorb any of the excess agricultural population; in fact, the proportion of farm population to the total has increased from 61 in 1891 to 66 in 1901, to 71 in 1911, and to 73 in 1921 and 1931 *(7, p. 719)*. Judging by the increase in population in the past decade (36 million, to a total of 389 million), the proportion is even slightly higher now. Agricultural overpopulation has been especially noticeable in such Provinces, as Bengal, and Madras. This is the reverse of the process taking place in the Western World and in the economically more progressive countries of the East.

The rise in population was accompanied by considerable extension of cropland, but it fell short of the farmers' needs. Greater output per unit of land could have taken care of the disproportion, but little has been achieved along this line - hence the rising population pressure on the land and the consequent decline in the average size of landholdings. A careful British student of Indian agriculture *(6, p. 46)* wrote:

> In the pre-British days, and the early days of the British rule, the holdings were largely of a fair size, most frequently more than 9 or 10 acres, while individual holdings of 2 acres were hardly known. Now the number of holdings is more than doubled and 81 percent of these holdings are under 10 acres in size, while no less than 60 percent are less than 5 acres.

Surveys conducted in various parts of India tend to show that a minimum subsistence family holding should be about 5 acres. But in actual practice even in Punjab, India's most prosperous agricultural Province *(11, p. 133)*-

> 22.5 percent of the cultivators cultivate one acre or less; a further 15.4 percent cultivate between one and two-and-a-half acres; 17.9 percent between two-and-a-half and five acres and 20.5 percent between five and ten acres. Except for Bombay [Province], which would probably show a very similar result * * * all other provinces have much smaller average areas per cultivator.

The uneconomic character of so small an acreage becomes even more obvious when it is noted that a cultivator's acre is often broken up in a dozen or more scattered plots. Good farming on a fraction of an acre is hardly possible. This system is responsible for a considerable loss of land for boundaries, precludes serious improvements in the cropping system, and prevents on occasion the full utilization of even such equipment as a pair of bullocks and a plow. As one writer *(8, p. 9)* noted correctly:

> Intensive farming in fractionalised plots has now meant such haste, imperfect tillage, and robbery of the soil, especially in the case of adoption of the more exhausting sugar-cane or cotton crops, that the total returns diminish.

The small acreage worked by the Indian peasants and its excessive fragmentation make it almost impossible for them to live within their small means. Indebtedness is the only way out. Since the loans secured at usurious rates of interest are mostly for unproductive purposes, indebtedness grows by leaps and bounds and becomes a permanent burden on the peasant's meager economy, giving rise to the saying that an "Indian peasant is born in debt, lives in debt, dies in debt, and bequeaths debt." Neglect of the land is one of the corollaries of indebtedness. Many a farmer loses the land to the moneylender, who is not interested in improving or cultivating it. Many a heavily indebted small cultivator or tenant, of whom there are tens of millions, treats the land in the same manner, since most of the output passes to creditors in exchange for a pittance. .It is obvious that agricultural progress and, more specifically, a rise in output per unit of land, cannot be achieved under these circumstances.

Such, in the main, is the framework within which the Indian peasants work. The question that calls for consideration is what do they actually produce despite these handicaps. Cash crops, such as jute and cotton, are grown on only 21 percent of the cultivated land. The main emphasis is upon growing food crops. A review of these crops, as well as of the exports and imports of foodstuffs, indicates the total volume of India's food supply.

LAND UTILIZATION

Agricultural statistics of India for 1936-37 (the latest available) show 658 million acres of surveyed land. Of this total, 87 million acres are in forests; the area not available for cultivation - that is, land absolutely barren or covered by buildings, etc., or otherwise appropriated to uses other than agricultural - amounts to 121 million acres. The remaining 450 million acres, or 68.4 percent, are cultivable. Of these, 111 million acres are culturable waste other than fallow - that is, land available for cultivation but either not taken up or abandoned - and 58 million acres are land kept fallow. The net area sown to crops is 281 million acres, or 42.8 percent of the total surveyed area. If, however, areas sown more than once (double-cropped) during the year are taken as separate areas for each crop, the gross area sown in 1936-37 amounted to 320 million acres.

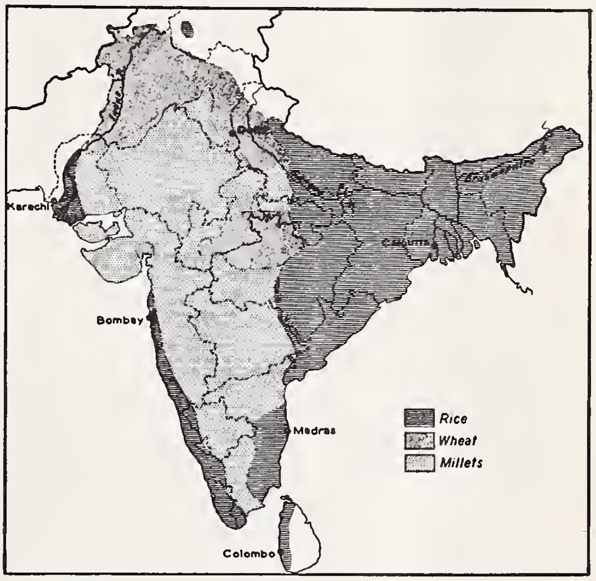

FIGURE 2.—Cultivation of principal food grains in India and Ceylon. (Reproduced from V. D. Wickizer and M. K. Bennett, The Rice Economy of Monsoon Asia, Food Research Institute, Grain Economics Series No. 3.)

TABLE 2.—*Acreage of principal crops in India, 1936-37*

CROP	AREA	PERCENTAGE OF TOTAL CROPS
Food Crops:	*Million acres*	*Percent*
Food grains	237	75
Fruits and vegetables	5	1
Sugar	5	1
Miscellaneous food crops	3	1
Condiments and spices	2	1
Total food crops	252	79
Other crops:		
Oilseeds	23	7
Fibers	25	8
Dyes and tanning materials	1	(1)
Drugs and narcotics	3	1
Fodder crops	14	4
Miscellaneous other crops	2	1
Total other crops	68	21
Total crops	320	100

[1] Less than half of 1 percent.

Compiled from Agricultural Statistics of India 1936-37 (4, v. 1-2).

Of the entire crop area, 252 million acres, or 79 percent, are in food crops and the rest is in other, or industrial crops. Food grains are the staff of life of the Indian people; in 1936-37 a total of 237 million acres, or 94 percent of the entire food-crop area, were under grains. The remainder was distributed among fruits and vegetables, sugar, spices, and miscellaneous food crops. The food grains are rice, wheat, barley, three types of millet - jowar, barja, and raggee - corn, gram (certain legumes), and other food grains and legumes. The acreage and percentage of each crop to the total food-crop acreage is shown in table 3.

TABLE 3.—*Acreage in food grains and legumes in India, 1936-37*

KIND	AREA	PERCENTAGE OF TOTAL
	Million acres	*Percent*
Rice	73	31.0
Wheat	33	13.9
Barley	7	2.9
Millet:		
Jowar	37	15.6
Barja	18	7.6
Raggee	6	2.5
Corn	8	3.4
Gram	21	8.8
Other food grains and legumes	34	14.3
Total	237	100.0

Compiled from Agricultural Statistics of India 1936-37 *(4, v. 1-2)*; and Estimates of Area and Yield of Principal Crops in India 1939-40 *(5)*.

FOOD PRODUCTION AND CONSUMPTION

Rice

Rice is by far the most important food crop of India. The diet of the bulk of the rural and urban population except in the wheat-producing areas consists mainly of rice. In fact, approximately 80 percent of the total calorific intake of the average diet in those areas is accounted for by rice. The quantity of millet, pulses, vegetables, fats and oils, fish, meat, and dairy products that a rice eater can afford to include in his diet is so small that its nutritive value depends largely on that of the main ingredient, rice.

Rice occupies approximately 23 percent of all the cultivated area of India and from 31 to 33 percent of all the food-crop area. But the crop is not uniformly distributed throughout India. The greater part of the acreage is concentrated in the eastern and northeastern part of the country adjacent to Burma. As indicated in figure 2, rice is the leading crop in the west only in the delta of the Indus River and along the coast south of Bombay; in the south rice dominates in Madras Presidency.

In general, 94 percent of the rice acreage (1939-40) is in British India and only 6 percent in the Indian States. Bengal stands first among the rice-producing Provinces, the area sown being 30 percent of all the ricelands of India; if the Province of Assam to the northeast and that of Bikar west of Bengal are added, the acreage and output of the three amount to 50 and 52 percent, respectively, of the countrys' total rice acreage and production. In Bengal and Assam, the proportion of the total cropland in rice is more than 75 percent.

India has the world's largest acreage under rice and is second only to China as a rice producer. In 1941 India's rice output from an area of 72 million acres amounted to 57 billion pounds. These figures are formidable indeed, but not when related to the acreage and output of the past two decades, on the one hand, and to the increase in population on the other. The striking feature of Indian agriculture is the very small increase in acreage under food grains as a whole, and the actual decline in some. Of the latter, rice is the most important. Toward the end of the nineteenth and the first two decades of the present century both acreage and output of rice were rising. Between 1895-99 and 1915-20, the rice acreage and production expanded by 53 and 46 percent, respectively; since then (1921-25 and 1937-41), however, acreage increased by less than 5 percent and the output actually declined by 4 percent. The population of India, however, has increased by 25 percent since 1895.

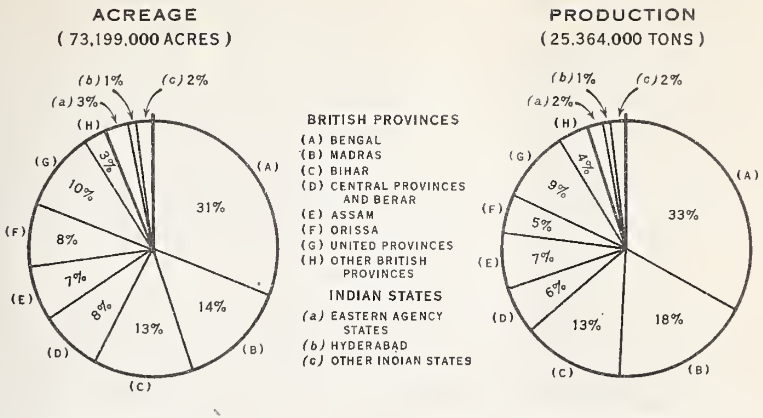

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FIGURE 3.—Rice acreage and production in India, 1940.

The decline in output is caused by the stationary or slowly declining yields. A great deal of effort on the part of various official agencies to obtain the use of improved varieties of seed and better methods of cultivation has borne little fruit. "The task," it was noted *(14, p. 235)*, "of educating the native rice growers away from the ancient practices is as difficult as an attempt to modify customs." By 1939 not more than 6 percent of the rice acreage was under improved varieties. The average yield per acre in the past two decades ranged from 29 bushels (1922-26) to 26 bushels (1937-41). The per-acre output in Japan during the corresponding periods was 68 and 75 bushels. To be sure, India's rice yields are not the lowest; but they rank seventh on the list of the 11 rice-producing countries of Asia.

TABLE 4.—*Rice production, trade, and utilization in India, 1916-20 to 1936-40*

PERIOD	PRODUCTION	IMPORTS	EXPORTS	AVAILABLE SUPPLIES	POPULATION	PER CAPITA UTILIZATION
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Millions*	*Pounds*
1916-20	61,233	2,646	750	63,129	308	205.0
1921-25	57,864	1,962	639	59,187	311	190.3
1926-30	56,133	2,425	683	57,875	329	175.9
1931-35	58,869	3,263	573	61,559	346	177.9
1936-40	56,025	3,814	727	59,112	364	162.4

Compiled from Estimates of Area and Yield of Principal Crops in India 1939-40 *(5)*; and Wickizer and Bennett *(14, p. 328)*.

The problem of low yields has a vital bearing not only upon the present supplies of rice but upon those of the future as well, for it is through rising yields that expansion of production is possible. A consideration of the possibility of expanding the rice acreage makes this clear. It is true that Indian statistics indicate 111 million acres of "culturable waste other than fallow," but how much of this land can be brought under the plow?

Of the 111 million acres, 92 million are in the British Provinces and the remainder in the Indian States. Most of the 92 million acres are in the most thickly populated Provinces where rice is the dominating crop and where the proportion of cropped to cultivable land is very high. The uncultivated land, therefore, must be of very poor quality. As Mukerjee *(8, pp. 10-11)*, a noted student of Indian agriculture, states:

> The chances of expansion of cultivation have now been exhausted, at least in the major provinces, hills, sand-dunes, and uncultivable wastes now thwarting extention. * * * The area of forests cannot be given over to the plough in the major Provinces; it is already too small in relation to the cultivated area. * * *
>
> In the crowded river valleys of Northern India, there is now little room for expansion of cultivation. Settled conditions have long been established, permitting the extensions of the frontiers of cultivation into the forest and marsh, ravine-stricken jungle and sand-dune. The possibilities of large canal irrigation schemes have been almost exhausted. Much of new uncultivated areas can no longer be brought under the plough as a result of the construction of new canal systems. The Malthusian Law of Diminishing Returns is now operating not only by the soil but also by water acting as a limiting agent in agricultural development.

Mukerjee's statement is not a mere expression of opinion; it is supported by agricultural data on land utilization in India in the past two decades. Despite the increasing pressure on the land, the increase in the acreage under rice and wheat has been very small, as has that under all the other food grains. Of course, the rice acreage could be increased at the expense of such cash crops as cotton, jute, and some of the oilseeds. Normally, such a development would be injurious to the economy of the Indian peasant, whose cash income is meager as it is. The conclusion is warranted, therefore, that any increase in the output of rice in India would have to come through a higher yield rather than an extension of area. This, in turn, calls for better cultivation of the soil already under crops.

For reasons indicated above, rice production in India failed to keep pace with the growth of population. Between 1916-20 and 1936-40, the output declined from 61 billion pounds to 56 billion pounds, or 8 percent. Imports increased from about 2.6 billion pounds to 3.8 billion pounds, whereas exports remained practically stationary at about 600 to 700 million pounds. But even the increased net imports constituted only about 5 percent of the output, and the total available supply was therefore not raised appreciably. During the period under consideration, the total available supply declined by 6 percent as against an 18-percent rise in population. The net result was that the per capita utilization declined from 205 to 162 pounds, or 21 percent. India depended upon Burma for about 6 percent of its total rice supply. With the Japanese occupation of Burma, India's rice-supply situation has therefore been weakened, and the per capita rice consumption in the region where this rice was chiefly utilized will be reduced accordingly.

The decrease in per capita utilization of rice does not necessarily suggest dietary deterioration. In some instances, such a development could be viewed as an improvement in the diet, provided, of course, the decline in the consumption of rice were accompanied by an increased use of noncereal foods, such as fish, meat, dairy products, vegetables, and fruit. Even an increased consumption of cheaper cereals could offset the loss in per capita rice-calorie consumption - although the diet would be less palatable and consist of less and poorer proteins, as well as less vitamins and minerals. If, however, the decline of per capita rice calories cannot be compensated by an increase in the per capita consumption of other foods, then the diet of the people "would be more likely to carry unfavorable implications - more people suffering hunger for longer periods" *(14, p. 204)*.

This, it would seem, has happened in India, for there has been no substitution of other foods for rice, as data on the output of other crops reveal. With the per capita production of other cereals actually declining, the possibility of substituting cheaper foods for rice is out of the question. There is even less likelihood of the substitution of more expensive foods for rice. Dairy and animal products have never played an important role in the diet of the people of India, and there is no reason to assume that the consumption of such products has gone up to fill the gap caused by the reduced consumption of rice. Only the per capita consumption of sugar has risen, but this item is not a very important factor in the country's diet.

Wheat

Wheat is India's second most important crop. Most of the wheat crop (96 percent) is grown north and west of a line drawn across the peninsula from Bombay to Calcutta. The average area in wheat in India during the seasons 1936 to 1940 was 34.5 million acres. Three-fourths of the wheat area is in the British Provinces and the remaining one-fourth is in the Indian States. Punjab, as indicated in figure 4, is the wheat-producing region of India, accounting for over one-fourth of the acreage and a third of the wheat output. Punjab and the United Provinces together represent one-half of the acreage and about two-thirds of the total wheat output of India.

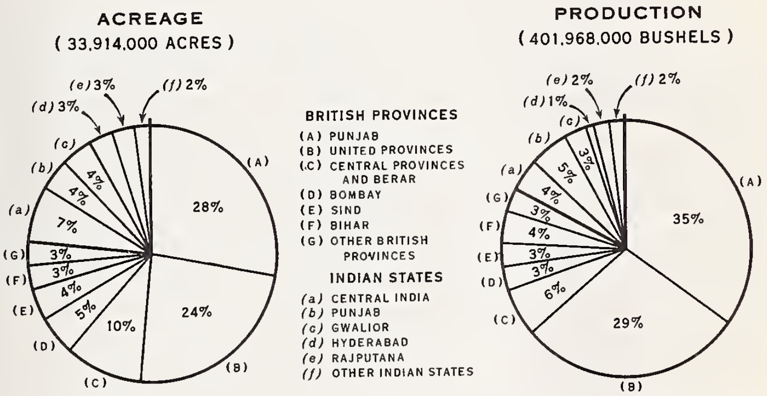

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FIGURE 4.—Wheat acreage and production in India, 1940.

A characteristic feature of the Indian wheat crop is that two-fifths of the total area is irrigated. About half of this lies in the Punjab, and the proportion of irrigated wheat is higher in this Province than in any other part of India. On the whole, approximately 60 percent of the wheat area of Punjab is under canal and well irrigation.

During the past 40 years the total wheat area has increased by 35 percent. But the principal gain was made in the first three decades of the century; in the 1930's and the first 3 years of the 1940's the acreage under wheat changed but little, averaging 34.5 million acres. Production did not keep pace with acreage. Whereas between 1909-13 and 1935-39 acreage registered a rise of 17 percent, output in the same period increased from 352 million bushels to 371 million bushels, or 5 percent. The yield per acre, however, averaged 10 percent less throughout the second half of the 1920's and all of the 1930's than during the pre-World War period or early 1920's.

Despite the relatively small increase in output, total wheat utilization in India increased from 300 million bushels (1909-13) to 363 million bushels, or 21 percent. Before the World War, India was a large wheat exporter, but since then there have been years when India was a net importer of wheat. A high import duty on wheat was imposed in 1931 to protect domestic producers; this, in conjunction with low world wheat prices throughout most of the 1930's did not favor the export of wheat from India. Most of the wheat that was formerly exported is consumed in the country. But for this development, domestic utilization would have been much smaller. As it is, the per capita utilization of about 1 bushel of 60 pounds has remained practically unchanged. It may be noted that per capita wheat consumption in India has been maintained not so much through increase in output as through diversion of what was formerly an exportable surplus into domestic channels of consumption; also, that the available volume of wheat for domestic utilization is not large enough to serve as a substitute, to any extent, for the sharp decline in the per capita consumption of rice.

TABLE 5.–*Acreage, production, yield, trade, and utilization of wheat in India, 1909-13 to 1942*

PERIOD	ACREAGE	PRODUCTION	YIELD	EXPORTS	IMPORTS	APPARENT DOMESTIC UTILIZATION
	1,000 acres	*1,000 bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1909-13	29,224	351,841	12.0	51,882	387	300,346
1920-24	29,195	345,647	11.8	17,924	1,827	329,550
1925-29	31,544	320,462	10.2	10,662	8,406	318,206
1930-34	33,343	355,570	10.7	3,690	3,075	354,955
1935-39	34,485	370,660	10.8	9,516	1,930	363,074
1935	34,490	363,216	10.5	1,285	507	362,438
1936	33,639	352,203	10.5	9,858	60	342,405
1937	33,215	364,075	11.0	20,366	818	344,527
1938	35,640	401,856	11.3	13,551	5,946	394,251
1939	35,441	371,952	10.5	2,522	2,318	371,748
1940	34,009	401,968	11.8	-	-	-
1941	34,862	373,520	10.7	-	-	-
1942	33,543	371,392	11.1	-	-	-

The question of expanding the wheat production is of importance, particularly in view of the decline in the acreage and output of rice. According to a thorough investigation of the wheat situation in India, the possibilities of enlarging the wheat area are also very limited *(3, p. 8)*. The only area expected to extend its wheat production to any significant extent is Sind, which is at present one of the minor wheat-producing Provinces. It has been estimated that the wheat area of Sind will increase from 1.2 million acres to 2.5 million acres, but only over a period of many years, depending upon the development of irrigation in that region. In addition, the Central Board of Irrigation estimated that very little further expansion is expected in the wheat area of northern India. It is clear, therefore, that for wheat as for rice a substantial increase in production is more likely through higher yields than through expansion of acreage.

Other Cereal Crops and Legumes

Corn, barley, jowar (Indian millet), bajra (pearl millet), and raggee (millet) are the other important cereals that enter into the diet of the people of India. Barley and the millets are the poor man's crops and foods in India, rice and wheat requiring better land, more capital resources, and more irrigation.

The three types of millet, of which jowar is the most important, constitute important food crops and in acreage are exceeded only by rice. The total area under millet is estimated at from 58 to 60 million acres and the output at about 12 million tons. In the case of this type of cereal, too, there has been no rise in acreage or output in two decades, the presumption being a decline in the per capita utilization.

Most of the corn acreage of India is in the United Provinces, the Punjab, and Bihar; during the past 20 years the crop area has changed but little, averaging about 6 million acres. The average harvest is about 83 million bushels, and the crop is consumed almost entirely on the farms producing it or is disposed of in the local market. With the output remaining the same and the population rising, the per capita utilization must have declined.

The acreage and output of barley has been declining. Between 1917-18 to 1921-22 and 1932-33 to 1936-37 the acreage under barley decreased 12 percent. Comparable figures on output are not available, but incomplete figures for the 10-year period 1931-40 show a 12-percent reduction in output. Barley, though poorer than wheat, is richer than rice and millet as regards the proportions of protein and fat. In view of the deficiency of the diet of the people of India in protein, the decline in the acreage and output of barley is a cause for serious concern, for it emphasizes a still more marked decline in per capita consumption of proteins.

In addition to cereals, India produces a great variety of leguminous crops, which are consumed both by man and beast. One of the legumes, known as gram, covers an area of 16 million acres with an output of 3.5 million tons. The agricultural statistics of India record some 40 million acres of other food grains and legumes (average 1933-37), as well as 11 million acres of other food crops. Official statistics do not record the output under these classifications, but it is worth noting that acreage has not changed in two decades; it is very likely, also, that, whatever the output, it has not increased during the two decades considered here.

Meat and Fish

Except among the Mohammedans (about one-fourth of the total population) and the few Christians, meat is only an occasional article of diet. It is absent from the diet of three-fourths of India's population - not because of lack of animals but largely because of religious sentiments *(8, p. 144)*-

> which belong to more spacious times in the past, and have now become obvious economic misfits * * * To kill a bullock or a cow is a deadly sin in Hinduism. The orthodox Hindu often objects to sell, even in extreme circumstances, because sale is usually to a butcher and leads to the slaughterhouse. Thus religious considerations determine whether meat and meat products, which contain a high percentage of protein of good quality, enter into the diet or not.

The estimates of meat consumption for the country as a whole vary greatly, since no official data are available. It has been privately estimated that in 1931 the yearly per capita meat consumption in British India (population 271 million) was over 3 pounds. On the other hand, a detailed investigation of food consumption among tenant-cultivators in a district of the Punjab Province revealed a yearly per capita consumption ranging from not quite 3 pounds to 8 pounds *(9, p. 12)*. Irrespective of the margin of error in either case, the people of India are not meat eaters.

Fish and fish products provide another source of animal protein in the diet of the Indian people. The source, however, is not large, for the quantity of fish consumed in India is estimated at between 700,000 to 1,800,000 tons, or not more than 10 pounds per capita even if the higher figure is accepted. This compares very unfavorably with a per capita consumption of over 100 pounds in Japan and more than 50 pounds in England.

Dairy Products

Nor are the people of India large consumers of dairy products. India has a larger cattle population than any other country in the world. Yet it has one of the lowest per capita rates of milk production and of consumption of milk products recorded for countries in which cattle are an important adjunct to the agricultural industry. India's dairy industry is based on vast numbers of poorly bred and inadequately cared for cattle, which are universally of low productive capacity.

According to one estimate, India's annual production of milk amounts to 70 billion pounds.[3] Daily milk production per capita has been estimated at 8 ounces and consumption of all dairy products at about 7 ounces of fresh-milk equivalent. In the United States the per capita milk production and consumption are approximately five times that of India.

Not more than a third of the milk output of India is consumed in the form of fresh fluid milk. Only in certain parts of the country, the Punjab especially, is milk an item of real importance in the daily diet. In Southern India (Madras Presidency) the yearly milk consumption per consumption unit is only 17 pounds. The consumption is mainly in the form of buttermilk and milk fat, the latter being used for the production of ghee, or clarified butterfat.

Sugar

Sugarcane is perhaps the one crop the output of which has increased very sharply in recent years. In 1936-40 India's annual sugar output averaged 5.1 million tons as against 2.8 million tons in 1921-25, an increase of 82 percent. Most of the sugar-producing regions in India are subtropical, comprising the United Provinces and Bihar, where the industry is chiefly concentrated. They grow about two-thirds of the total acreage under cane (3.8 million acres for 1935-36 to 1939-40), and about two-thirds of the total sugar produced in the country.[4]

Per capita consumption, too, has risen but not in the same proportion. In 1931 and 1941 the per capita consumption amounted to 28 pounds compared with 21 pounds in 1921, an increase of 33 percent. The quantity of sugar consumed varies greatly from region to region. In the Punjab sugar consumption reaches proportions consumed in Western countries, and represents about 10 percent of the total calorie intake. In the Madras Presidency the calorie intake is only about 4 percent.

Oilseeds

Of the nuts and their derivatives consumed in India, the peanut is perhaps the most important one. Cultivation of this crop in India has expanded very rapidly during the past 40 years; from less than 300,000 acres at the beginning of the century, the area reached a record of over 9 million acres in 1937-38, when production exceeded 4 million short tons of nuts. In the next 3 years, the crop area fluctuated between 8.4 and 8.7 million acres, and output between 3.5 to 4.1 million short tons.

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[3] A writer for the Economist *(2, p. 627)* placed the total volume of milk production in India at 48 billion pounds, while Mukerjee *(8, p. 24)* estimated India's milk production at 113 billion pounds.

[4] More than 60 percent of the sugar is made up of gur, a low-grade sugar that contains between 50 and 60 percent of sucrose.

It has been estimated that 12 percent of the output is utilized for seed, approximately 40 percent is exported, and the remainder is used for human consumption. Only 7 percent of the total peanut production is consumed as nuts, and the average per capita consumption in this form, based on the 1931 population, is only slightly over 1 pound. The largest part of the output, approximately 42 percent, is consumed in the form of oil. On the whole, despite the rapid expansion of the peanut output, the average per capita consumption in all forms is roughly only 7 pounds.

Rapeseed and mustard-seed oil are other items consumed in fairly large quantities. The 1940-41 area under the rapeseed and mustard-seed crops was 6 million acres, with an output of 1.2 million short tons. Practically the entire output is crushed into oil and consumed at home. To this may be added linseed oil, although the amount used for human consumption is not large; also sesamum oil, fairly large quantities of which are consumed.

FOREIGN TRADE IN FOODSTUFFS

In the discussion concerning the available food supply of India in relation to consumption, reference must be made to India's exports and imports of food products. Despite the basically low standard of nutrition in India, the country is a large exporter of certain food products. During the period 1933-34 to 1936-37 India's food exports averaged 372 million rupees (about 135 million dollars) in value, or 25 percent of all exports. To be sure, tea alone accounts for half of the value of all food exports; the remainder is made up of fish, fruits and vegetables, spices, and - above all - of peanuts and peanut oil. The latter two are important items, considerable quantities of which could be consumed domestically. On the other hand, they help to maintain the purchasing power of the Indian peasants for such products as they need but do not themselves produce. Furthermore, exports help them to meet some of their obligations, both to the landlords and to the Government.

India's food imports play a considerably smaller role in the country's import trade than do food exports in relation to the export trade. India's food imports before Burma was separated from India averaged 104 million rupees (1935-36 and 1936-37), or 8.5 percent of total net imports. The value of imports was doubled in 1937-38 and 1938-39, when the trade with Burma was treated the same as that with any other foreign country. The increase was caused mainly by rice imports from Burma, which did not appear in Indian trade statistics prior to 1936-37. In 1938-39 rice alone accounted for 54 percent of all food imports; if such essential items as spices and salt are added, the three products constituted 68 percent of the volume of all food imports. For the greater part, all the other imported foodstuffs serve the needs of the relatively few in the urban centers, thus playing an insignificant role in the diet of India's vast population.

India's participation in the war and the temporary loss of Burma has practically put an end to the country's foreign trade, including that in foodstuffs. India will be denied the much-needed rice from Burma, though normally the volume represents only 6 percent of the total available supply. The loss of other food imports will not constitute a serious problem, especially for the mass of the Indian peasantry. On the other hand, inability to export foodstuffs will add such items as fish, fruits, and vegetables, and a considerable volume of peanuts and peanut oil to the none-too-abundant food supply of India.

COMPOSITION AND INADEQUACY OF DIET

The account thus far, dealing with the acreage, production, and consumption of the principal foodstuffs in relation to India's population, has tended to show that the level of food consumption has been declining. A composite evaluation of consumption of the most important food items seems to support the conclusion arrived at by consideration of the principal individual foodstuffs. According to calculations made by Professor Mukerjee *(8, p. 18)*, the total food supply available to the Indian population in the period 1915 to 1935 has remained practically unchanged, if year-to-year fluctuations are disregarded. At the same time, however, population - while relatively stationary to the end of the 1920's - by 1935 had reached a level about 15 percent above that of 1915. As a result, the ratio between available food supplies and population numbers has decidedly declined in recent years.

A more detailed study, even though on a smaller scale, was carried out by Aykroyd *(1)* to determine not only the quantity of food consumed, but its quality as well. The region investigated was Madras Presidency with a population of 48 million, occupying a large part of southern India. The following tabulation by Aykroyd *(1, p. 48)* is based on the production data of Madras Presidency crop reports for 1933-34. Aykroyd cautions against the high margin of error to which the data are subject, but they are, nevertheless, sufficiently accurate to give a general idea of the quantity and quality of food per consumption unit per day.

Table I [Aykroyd].-Physiological Value of Food Available.

Calories, Proteins, Fats and Carbohydrates available per Consumption Unit per Day.

(Madras Presidency, 1933/34.)

	Ounces per consumption unit per day	Proteins (grammes)	Fats (grammes)	Carbo-hydrates (grammes)	Calories
Rice (including imports)	12.240	23.75	1.91	275.40	1,212
Cholam	2.499	6.96	2.81	47.28	242
Cambu	1.400	5.10	1.93	27.16	147
Ragi	2.070	5.75	0.95	48.33	226
Korra	0.470	1.03	0.63	9.49	47
Varagu	0.540	1.18	0.72	10.91	54
Samai	0.180	0.39	0.24	3.64	18
Maize	0.090	0.19	0.04	1.87	9
Green gram	0.057	0.39	0.02	0.98	6
Black gram	0.028	0.19	0.01	0.49	3
Red gram	0.110	0.72	0.11	1.78	11
Bengal gram	0.035	0.16	0.04	0.64	4
Pulses (imported)	0.410	2.67	0.41	6.64	41
Mutton and goat's flesh	0.090	0.54	0.18	-	4
Eggs	0.043	0.16	0.13	-	2
Groundnut oil	1.050	-	29.40	-	265
Gingelly oil	1.100	-	2.80	-	25
Coconut oil	0.080	-	2.20	-	20
Sugar-cane (jaggery)	0.860	0.07	-	21.50	86
Other sugars	0.630	0.05	-	15.75	63
Cow's milk	0.250	0.23	0.26	0.34	4
Buffalo's milk	0.490	0.66	1.07	0.61	15
Fish	0.290	1.49	0.06	-	6
Per consumption unit	-	51.68	45.92	472.81	2,510

The estimated daily intake per consumption unit[5] is 2,500 calories or 2,068 calories per capita; in Japan the per capita intake is 2,732 calories. Aykroyd *(1, p. 50)* therefore concludes as follows:

> The total calculated food supply of the Madras Presidency is, on this reckoning, just sufficient to cover the energy needs of the population, provided it is evenly distributed. But, of course, it is not evenly distributed, and so low a mean intake suggests that large sections of the population do not get *enough* to eat.

In considering the problem of quantity versus quality of food in India, or for that matter throughout the Far East and southeastern Asia, Aykroyd lays down the general principle that-

> *primary emphasis must be placed on quantity.* "Enough food" takes precedence over "the right sort of food." In India, however, there is not enough food, nor is the available food the "right sort of food."

The quantitative insufficiency of food is not compensated by qualitative factors. On the contrary, an analysis of its quality, as shown in table 6, reveals glaring deficiencies. A disproportionate amount of cereals is consumed in relation to other classes of foods. It is to be noted, in this connection, that 78 percent of the total calories are derived from cereals. The diet lacks the so-called protective foods. Less than 2 percent of the caloric intake is of animal origin, and fully 98 percent of the total calories is accounted for by vegetable food. A diet of this nature is almost certain to be low in efficient protein, in minerals, and in vitamins. In the words of Aykroyd *(1, p. 50)*:

> The supply of protein [in Indian food] is low and that of animal protein almost negligible. The total production of fat is sufficient to allow for a reasonably adequate *per capita* intake but a proportion (unknown) of the fat available is used for inunction [oil used for religious or medicinal purposes]. Consumption of animal fat is very low, so that vitamin A * * * intake is almost negligible.
>
> * * * Even if the supply of milk, eggs and meat has been considerably under-estimated and double the quantity of each is available, it is clear that these foods are unimportant items in the diet of the people.
>
> The supply of vegetables and fruits, which contain carotene, the precursor of vitamin A, and other valuable food factors, is scanty; this is shown by general and detailed observation. There is a deficiency of vitamin B_2, vitamin C and mineral elements considered of importance in nutrition, notably iron and calcium.

Aykroyd *(1, p. 51)* summarizes his findings by saying that-

> the study of food supply and diet, therefore, leads to the conclusion that Indians of the poorer classes consume an inadequate and ill-balanced diet.

CONCLUSION

The problem now is one of improving the food situation in India or, more precisely, of increasing the per capita consumption of food in a quality and variety that would do away with the faulty and unbalanced diets. There is general agreement as to what constitutes proper diets for the various peoples of the various regions of India; and there is no disagreement on the all-important point that, in order to make those diets available, the volume of output of the food crops must be raised well above present levels, especially if the recent trend in population growth continues. Such an increase in production, however, would constitute a task of enormous proportions.

More and better food for India's growing population is not a question of increased food imports or of converting the acreage under commercial crops, such as cotton, jute, and oilseeds, into food crops. India's growing industries and foreign-trade requirements will need all the present output of such raw materials and much more as time goes on. Essentially, an increase in the country's food supply must depend upon better utilization of resources already in use. This seems to be the key to the problem.

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[5] A consumption unit is roughly equal to an adult male. Consumers in all age and sex groups are converted on this basis.

There is nothing inherent in an Indian peasant that prevents him from becoming an efficient producer of food and other farm products and from realizing all the benefits that follow. But the institutional milieu within which the peasant lives and works militates against such changes. Lack of education, very limited application of agricultural science, the land-tenure system that burdens tens of millions of Indian peasants, inheritance laws that result in fragmentation of holdings, religious prejudices and social customs that do not allow a balanced diet, and a rapid increase in population pressing ever harder against the available resources - all these factors combine to make output low - both per unit of land and per man. The net result is widespread poverty and disease.

All the cited drawbacks of Indian agriculture react upon one another and are inextricably intertwined. It is impossible, for instance, to introduce improved methods of cultivation without first reducing the ignorance and illiteracy so prevalent among peasants; nor would it be possible, even if the peasantry were more literate, to effect such improvements on the widely scattered fragments of peasant holdings. By the same token, a higher standard of living of the peasantry depends not only on improved yields but also in no small degree upon basic changes in the iniquitous land-tenure system.

It may be concluded, therefore, that the problem of a sufficient and efficient food supply for India's 400 million people is essentially one of general improvement in the field of education, of adoption of basic principles of agricultural science, and of more liberal interpretation of the social, religious, and political customs and traditions of the country. A mere addition of a few million acres under food crops may alleviate the food situation temporarily, but it is not a lasting solution. Only general social, industrial, and agricultural progress could provide the people of India with the quantity and quality of food a higher standard of living requires.

But no progress can bring this about if the growth of population in India will continue at the rate of the past two decades, nullifying whatever material advantage is made. It is well to remember in this connection the conclusion reached by the Royal Commission on Agriculture in India *(12, pp. 58-59)*-

> Throughout our investigation, we have constantly been impressed with the thought that mere material improvement alone will not bring lasting benefit to the agricultural population. Increase in yield by better seed and better cultivation; security of the harvests gained by the expansion of irrigation; immunity from losses due to pests or pestilence; higher prices from improved communications and conditions of marketing; everything, in short, which we have advocated for the material advancement of the people will merely postpone the effects of the growing pressure of the population on the soil. No lasting improvement in the standard of living of the great mass of the population can possibly be attained if every enhancement in the purchasing power of the cultivator is to be followed by a proportionate increase in the population.

An Indian scholar *(10, p. 206)* puts it even more strongly:

> * * * what we want is not only that there should be no increase in our numbers, but that our population should go on declining for some years to come. This alone coupled with a rapid industrial activity aided by the State may be able to restore the equilibrium [between population and production], and thus solve the problem perhaps after a long period.

LITERATURE CITED

(1) Aykroyd, W. R.
1937. NUTRITION IN INDIA. *In* Preparatory Papers Relating to India, League of Nations Health Organ., Intergovernmental Conf. Far-Eastern Countries on Rural Hyg., pp. 45-69.

(2) Economist Newspaper, Ltd.
1936. INDIA'S FOOD PROBLEM. Economist 125:627-628.

(3) India Agricultural Marketing Adviser.
1937. AGRICULTURAL MARKETING IN INDIA. REPORT ON THE MARKETING OF WHEAT IN INDIA. India Agr. Market. Adv. Market. Ser. No. 1, 451 pp., illus.

(4) India Department of Commercial Intelligence and Statistics.
1939. AGRICULTURAL STATISTICS OF INDIA 1936-37. V. 1-2, illus.

(5) ———
1941. NO. 1 - ABSTRACT TABLE - AREA AND YIELD OF EACH CROP. India Dept. Com. Intel. Est. Area and Yield Princ. Crops India 1939-40, No. 3892, 57 pp., illus.

(6) Mann, Harold H., et al.
1917. LAND AND LABOUR IN A DECCAN VILLAGE. 184 pp., illus. London and Bombay.

(7) Mukerjee, Radhakamal.
1937. THE POPULATION PROBLEM IN INDIA. Asiatic Rev. 33: 709-737.

(8) ———
1938. FOOD PLANNING FOR FOUR HUNDRED MILLIONS. 267 pp., illus. London.

(9) Punjab Board of Economic Inquiry.
1935. RATES OF FOOD CONSUMPTION BY 71 FAMILIES OF TENANT-CULTIVATORS IN THE KHANEWAL TAHSIL, MULTAN DISTRICT. Punjab Bd. Econ. Inq. Pub, 29, 193 pp., illus.

(10) Ranadive, B. T.
1930. POPULATION PROBLEM OF INDIA. 216 pp. Calcutta, Bombay [etc.]

(11) Royal Commission on Agriculture in India.
1928. THE SUBDIVISION AND FRAGMENTATION OF HOLDINGS. Roy. Comn. Agr. in India Rpt. 1928, ch. 5.

(12) ———
1928. ABRIDGED REPORT OF THE ROYAL COMMISSION ON AGRICULTURE IN INDIA. 101 pp. London.

(13) Wadia, P. A., and Joshi, G. N.
1927. THE WEALTH OF INDIA. 446 pp., illus. London.

(14) Wickizer, V. D., and Bennett, M. K.
1941. THE RICE ECONOMY OF MONSOON ASIA. Stanford Univ., Food Res. Inst. Grain Econ. Ser. No. 3, 358 pp., illus.

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UNITED STATES-PERUVIAN RECIPROCAL TRADE AGREEMENT . . . . .

By Louis C. Nolan*

On May 7 the United States and Peru concluded a reciprocal trade agreement, consolidating the political and economic forces of these two nations for a greater hemispheric war effort and laying the foundation for the resumption of normal trade relations when the war is over. Broad long-time national and hemispheric considerations, rather than those of short-time economic gain to either nation individually or to any one economic group in particular, are the keystone of the agreement.

Insofar as it contributes to filling the needs of one from the abundance of the other, the agreement strengthens the democracies for a more vigorous prosecution of the war. Insofar as it lowers international trade barriers and extends the most-favored-nation principle as the basis for trade between nations, it further prepares the way for the establishment of normal and mutually profitable commercial relations when the war is over.

With the return of peace the peoples of the world will need useful goods in unprecedented quantities. If these goods can be moved from one country to another with a minimum of interference from artificial trade barriers, the way will be eased for the resumption of normal economic activity, and mankind at large will be the beneficiary. If this cannot be done, national and international repercussions of unheralded proportions are likely to ensue, and want and misery may be the common lot of all. The United States-Peruvian trade accord is one more step in the right direction.

For two decades now, the United States has been the ranking supplier of the Peruvian market for imported goods and has ranked first or second as a market for Peruvian exports. Since the outbreak of the war in Europe, it has become even more important than before.

The United States share of the Peruvian import trade from 1921 to 1939, though showing considerable variation, ranged annually from about a quarter to a half of the total. This was usually two or three times the share of the United Kingdom, the nearest competitor. In 1940, the United States share comprised 53 percent of the total.

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* Office of Foreign Agricultural Relations.

TABLE 1.–*Peruvian imports, by countries of origin, specified years*

COUNTRY	1929		1932		1938		1939		1940	
	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL
	1,000 soles	*Percent*	*1,000 soles*	*Percent*	*1,000 soles*	*Percent*	*1,000 soles*	*Percent*	*1,000 soles*	*Percent*
United States	79,416	41.8	21,918	28.8	89,227	34.3	105,067	41.1	169,312	53.1
United Kingdom	28,456	15.0	13,196	17.3	26,345	10.1	21,513	8.4	29,341	9.2
Germany	19,012	10.0	8,150	10.7	52,823	20.3	37,628	14.7	4,482	1.4
Italy	7,495	3.9	3,160	4.2	6,627	2.5	5,223	2.0	7,908	2.5
Japan	2,356	1.2	1,260	1.7	8,684	3.4	8,016	3.1	18,570	5.8
France	7,729	4.1	3,001	3.9	6,969	2.7	9,070	3.5	5,621	1.8
Argentina	6,245	3.3	4,058	5.3	15,901	6.1	13,852	5.5	24,810	7.8
Chile	1,471	.8	1,900	2.5	5,225	2.0	5,422	2.1	6,149	1.9
Canada	1,026	.5	3,014	4.0	4,915	1.9	6,847	2.7	10,513	3.3
Others	36,646	19.4	16,432	21.6	43,443	16.7	43,149	16.9	42,026	13.2
Total	189,852	100.0	76,089	100.0	260,159	100.0	255,787	100.0	318,732	100.0

During the period 1921-39 the United States generally took from 14 percent to 40 percent of Peru's total exports (by value). In so doing this country competed for first place with the United Kingdom as Peru's leading export market, the United Kingdom taking from 20 to 38 percent of Peru's exports. In 1940 the United States took about 43 percent as compared with 12 percent taken by the United Kingdom. These figures do not reflect the whole truth, however, as large exports of copper, which went first to the United States for refining, were subsequently reexported to the United Kingdom.

TABLE 2.–*Peruvian exports, by countries of destination, specified years*

COUNTRY	1929		1932		1938		1939		1940	
	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL	VALUE	PART OF TOTAL
	1,000 soles	*Percent*	*1,000 soles*	*Percent*	*1,000 soles*	*Percent*	*1,000 soles*	*Percent*	*1,000 soles*	*Percent*
United States	111,575	33.3	30,944	17.3	91,422	26.7	115,609	30.3	173,686	42.8
United Kingdom	61,405	18.3	64,378	36.1	68,272	20.0	74,762	19.6	49,119	12.1
Germany	20,408	6.1	12,828	7.2	35,967	10.5	22,683	5.9	155	(1)
Italy	312	.1	1,106	.6	853	.2	2,514	.7	3,068	.8
Japan	99	(1)	37	(1)	1,952	.6	9,060	2.4	31,593	7.8
France	4,207	1.3	7,858	4.5	21,826	6.4	21,318	5.6	9,368	2.3
Argentina	24,744	7.4	7,732	4.3	26,644	7.8	22,110	5.8	20,359	5.0
Chile	25,975	7.8	12,561	7.0	20,549	6.0	29,808	7.8	40,949	10.1
Canada	24,281	7.2	13,014	7.3	16,661	4.9	4,169	1.1	7,086	1.7
Others	62,075	18.5	28,071	15.7	57,983	16.9	79,388	20.8	70,431	17.4
Total	335,081	100.0	178,529	100.0	342,129	100.0	381,421	100.0	405,814	100.0

[1] Less than 0.05 percent.

Unrefined copper is the leading commodity taken from Peru by the United States. It normally accounts for half or more of the value of all merchandise entered from that country. Cane sugar, zinc ore, vanadium ore, alpaca and cashmere-goat hair, and lead ore and bullion also are imported in substantial quantities. Hides and skins, coffee, crude rubber, coca leaves (from which cocaine is produced), gutta balata, cube (timbo or barbasco) root, long-staple cotton, mahogany, clothing and combing wool, tungsten ore, antimony, bismuth, and guano are imported from time to time in varying amounts, as are mercury, mica, quinine, tin, tanning material, and kapok. Although minerals still account normally for about two-thirds of our Peruvian purchases, imports of minerals decreased somewhat in the dozen years or more before the war, whereas purchases of sugar, hides and skins, coca leaves, and alpaca wool have recently made up a larger share of total purchases. This trend parallels the increased emphasis that in recent years has been placed upon agricultural production in Peru. The unrefined copper received in most years since 1932 - at which time an import excise tax was imposed on this commodity - has been brought in under bond for refining and reexport. Hence, this movement of copper normally reflects world demand rather than United States demand alone.

Taken all together, these general merchandise imports from Peru were valued at $30,167,000 at their predepression peak in 1929, at $3,685,000 in 1932 when at the depression low, and at $17,943,000 in 1940 after having risen almost steadily over a period of several years. Imports in 1940, however, were still 21 percent below their predepression level.

TABLE 3.—*United States merchandise imports from Peru, 1939 and 1940*

IMPORTS	1939		1940	
	VALUE	PERCENTAGE OF TOTAL	VALUE	PERCENTAGE OF TOTAL
	1,000 dollars	*Percent*	*1,000 dollars*	*Percent*
Metals and manufactures (except machinery):				
Tungsten ore	63		233	
Vanadium ore	992		1,217	
Lead (ore, bullion, pigs, and bars)	594		1,079	
Copper ore	7,331		7,719	
Zinc ore	1,060		525	
Antimony ore	63		93	
Bismuth	154		118	
Others	89		80	
Total	10,346	74.8	11,064	72.0
Wood	145	1.0	65	.4
Vegetable products, inedible, (except fibers and wood):				
Crude rubber	4		45	
Gutta balata	16		34	
Cube (timbo or barbasco)	135		186	
Coca leaves	80		116	
Others	51		120	
Total	286	2.1	501	3.3
Textile Fibers and manufactures:				
Cotton, raw	47		110	
Cotton, linters	33		54	
Flax, unmanufactured	-		71	
Wool	135		888	
Hair of the cashmere goat, alpaca, etc.	871		1,003	
Others	4		12	
Total	1,090	7.9	2,138	13.9
Vegetable food products and beverages:				
Coffee	32		78	
Cane sugar	1,085		716	
Molasses, inedible	11		21	
Others	6		17	
Total	1,134	8.2	832	5.4
Animals and animal products:				
Hides and skins	509		562	
Others	14		18	
Total	523	3.8	580	3.8
Guano	205	1.5	-	-
Miscellaneous articles	98	.7	184	1.2
Total imports for consumption	13,827	100.0	15,364	100.0
General imports	13,959		17,943	

United States exports to the Peruvian market customarily consist for the most part of manufactured and semimanufactured iron and steel articles. In 1939 airplanes, automobiles and trucks, auto parts, dynamite, mining and quarrying machinery, and Douglas fir lumber were the outstanding individual products. There were a large number of miscellaneous items that individually constituted only a small part of the total.

TABLE 4.—*United States merchandise exports to Peru, 1939 and 1940*

CLASSES OF COMMODITIES	1939		1940	
	VALUE	PERCENTAGE OF TOTAL	VALUE	PERCENTAGE OF TOTAL
	1,000 dollars	*Percent*	*1,000 dollars*	*Percent*
Machinery and vehicles	7,870	41.8	8,564	37.9
Metals and manufactures (except machinery and vehicles)	3,558	18.9	4,812	21.3
Nonmetallic minerals	1,175	6.2	1,108	4.9
Wood, paper, and products	1,137	6.0	1,520	6.7
Chemicals and related products	2,157	11.5	2,563	11.3
Vegetable products, inedible	722	3.8	1,079	4.8
Miscelleneous domestic articles	827	4.4	1,038	4.6
Textile fibers and manufactures	616	3.3	974	4.3
Vegetable food products and beverages	436	2.3	442	2.0
Animals and animal products	342	1.8	496	2.2
Total exports	18,840	100.0	22,596	100.0
Total exports, including reexports	19,246		23,123	

United States exports of merchandise to Peru since 1933 (through 1940) have been consistently more than United States purchases from that country. In other words, Peru has had a passive (unfavorable) balance of merchandise trade with this country. It was offset, in whole or in part, by the fact that the United States imported quantities of metals and unrefined copper (later reexported) from Peru and that Peru was able to sell a large part of its agricultural and industrial production elsewhere, thereby building up active (favorable) balances of exchange with which to meet the passive balances resulting from its trade with this country. The loss of Peru's foreign markets as a result of the war, however, made the continuance of this lopsided trade impossible. For the duration of the war, at least, it has been corrected by increased United States purchases of Peruvian strategic, essential, and other materials.

TABLE 5.—*United States merchandise trade with Peru, 1926-30 to 1940*

YEARLY AVERAGE OR YEAR	EXPORTS TO PERU (INCLUDING REEXPORTS)	GENERAL IMPORTS FROM PERU	TOTAL VALUE OF TRADE
	1,000 dollars	*1,000 dollars*	*1,000 dollars*
1926-30	23,906	22,819	46,725
1929	26,176	30,167	56,343
1932	3,962	3,685	7,647
1937	19,001	16,525	35,526
1938	16,892	12,813	29,705
1939	19,246	13,959	33,205
1940	23,123	17,943	41,066

Despite the comparatively large part that the United States plays in Peru's foreign trade, the fact is that the trade between these two American republics in the past has been relatively small - much smaller than might have been expected in view of the area and resources of Peru. The causes are readily apparent.

At least nine-tenths of the people in Peru are Indians and mestizos. About half are full-blooded Indians and another third are largely of Indian blood. They produce little that enters the channels of international trade, except in the mines of the sierras and on the cotton and sugar plantations of the coastal valleys. They are paid low wages and have small buying power. Virtually untouched by a desire for the thousand and one articles and gadgets that provide the comforts and conveniences of modern life in other parts of the world, they purchase few imported goods.

The difficulties and almost prohibitive costs involved in building, operating, and maintaining modern roads and railroads to the vast mountain fastnesses of Peru have left much of the commerce and transportation of the country dependent upon pack trains. Air transportation is practical only for passengers and for articles that can afford to pay relatively high transportation charges. Ores from the mines in the sierras, cattle hides, wool, alpaca and cashmere-goat hair from the uplands, coffee or crude rubber from the montaña far away across the cordilleras - all these must be carried by donkey or llama at some stage of their journey. Though Lima on the coast is only about 700 miles as the crow flies from Iquitos across the Andes on the headwaters of the Amazon, west-coast shippers frequently ship their goods through the Panama Canal and down the Atlantic Coast to the mouth of the Amazon River and all the way up that river to Iquitos, a distance of 6,500 miles, to avoid the trials of crossing the Andes. These transportation difficulties have retarded Peru's domestic and foreign trade.

Also, the relatively high duties and quota limitations that the United States in the past has imposed upon a number of Peru's principal commodities have been instrumental in keeping down the volume of trade between the two countries. Peruvian duties on American products, conversely, have generally been moderate, and they have aimed usually at revenue rather than protection. Furthermore, during the decade of the 1930's when governmental control of foreign-exchange transactions and quota restrictions became the order of the day, Peru refused to use these devices. While Peruvian exporters of sugar and cotton were met in this country with quota restrictions, American exporters faced no such trade barriers in Peru.

But withal, had the United States and Peru been fully awake to the opportunities each had for supplementing the economy of the other and at the same time for improving itself economically, trade between these two American nations would have been substantially larger than it actually was for some time before the war, and undue trade barriers would have been removed or lowered. The present crisis in world affairs has supplied the needed awakening in both Peru and the United States. These countries are reevaluating their trade relationship in terms of present necessities and future potentialities for greater mutual helpfulness.

PROVISIONS OF THE AGREEMENT

The agreement provides that each nation shall accord to the other unconditional most-favored-nation treatment on customs duties and related matters, but the United States undertakes not to invoke in its behalf the most-favored-nation provisions with respect to any tariff preferences that Peru may accord to a contiguous country, such as Chile, provided these tariff preferences conform to the formula approved by the Inter-American Financial and Economic Advisory Committee (September 18, 1941), following a resolution of the Seventh International Conference of American States at Montevideo. This formula requires that (1) the tariff preferences in question be effectuated through trade agreements embodying tariff reductions or exemptions; (2) the nations signatory to the agreement reserve the right to reduce or abolish the customs duties on like products imported from other countries; and that (3) such tariff preferences be not an obstacle to any broad program of economic reconstruction involving the reduction of tariffs and other trade barriers and the promotion of international trade on a multilateral unconditional most-favored-nation basis.

Provisions Affecting Peruvian Agricultural Imports From the United States

Although Peru produces considerable quantities of fruit, it depends upon imports to supplement its national consumptive requirements. Many of these imports normally are from Ecuador and Chile. In 1940 about $165,848 worth of fresh fruit of all kinds was imported into Peru, 76 percent (by value) of the total from Ecuador, 17 percent from Chile, and 6 percent from the United States. The imports from Ecuador consisted mostly of bananas and those from the United States largely of fresh apples, pears, and plums.

Prior to the agreement, the basic Peruvian import duty on fresh fruit from all countries except Chile was 0.02 sol per kilogram (about 0.147 cent a pound). This amounted, roughly, to 5 percent ad valorem, estimated on the basis of United States imports into Peru in 1940. Fruit from Chile entered duty-free. The present trade agreement provides that fresh apples, pears, and plums from the United States are to enter Peru free of duty, provided they are imported during certain specified seasons. For apples the season is from September 1 to the last day of the following February; for pears, from July 1 to December 31; and for plums, from May 1 to October 31.

Since the tariff preference that Peru accords to Chile on fresh fruit - permitting its entry into Peru duty-free throughout the year - conforms to the formula of Montevideo, Chilean fresh fruit will continue after the effective date of the present United States-Peruvian agreement to enter Peru free of duty throughout the year. American fresh apples, pears, and plums will enter free of duty for a specified season of the year only. The important thing, however, is that this specified season is when fruit exports from the United States to Peru are normally at their peak and those of Chile are about at their minimum, it being the Chilean off season.

The present agreement provides, further, that a wide variety of United States dried and canned fruits may enter Peru at one-half the former duty (table 6). This will encourage the United States to export more fruit to Peru and will help the Peruvians round out their needs. The duty on walnuts was also cut in half. Peruvian imports of these fruit and nut items in 1940 were valued at $59,318.

Other United States agricultural items that Peru agrees to admit under lowered duties are oats prepared as a foodstuff; canned asparagus, soups, baked beans, and corn; and flour of oats, rye, corn, rice, and farina. The Peruvian duty on oats prepared as a foodstuff is reduced by one-third. Peru imported about $20,700 worth of this commodity in 1940. The duty on canned asparagus, soups, baked beans, and corn - $23,394 worth of which was imported from the United States in 1940 - is cut in half. The duty on flour of oats, rye, corn, rice, and farina also is cut nearly 50 percent in the agreement. Peruvian imports of these flours from the United States in 1940 were valued at $2,904.

The agreement binds the existing moderate rate of duty on Peruvian imports of United States wheat flour. Of the total wheat flour imported into Peru in 1940, valued at about $91,000, approximately $83,000 worth was supplied by the United States. In the past nearly all of this flour has gone into the trans-Andean region of Peru, entering at the port of Iquitos on the Amazon River. The wheat flour consumed in the coastal and Andean regions is supplied for the most part by domestic mills; but because of the difficulties of transportation, the supplying of the trans-Andean region has been a problem. Much of the staple foodstuffs for Iquitos has been shipped from the

Pacific ports of Peru through the Panama Canal and all the way up the Amazon River. While the population of Iquitos is not large, it is expected to increase substantially in the months ahead; and increased quantities of flour probably will be needed there. The Peruvian Government is now working on the problem of how properly to supply this area. The binding of the duty in the present agreement should work toward this end, insofar as wheat flour is concerned.

Provisions Affecting United States Agricultural Imports From Peru

Peru can help supply the United States with a number of agricultural commodities that are not produced in the United States at all or in sufficient quantities to meet national requirements.

Commodities bound on the free list

Cinchona and similar barks from which quinine may be extracted and quinine sulphate and all alkaloids and salts of alkaloids derived from cinchona bark are important items covered by the agreement, although they are not agricultural products, properly speaking. They are the basic sources of the supply of quinine - one of the 14 commodities that the Army and Navy Munitions Board declared on January 30, 1940, to be essential to national defense. Cinchona bark is obtained from certain species of cinchona trees that are native to the northern part of South America. Since about 1850, however, when some cinchona trees were taken to the Netherlands Indies and there transplanted, the world has depended upon these islands for about 90 percent of its supply. No cinchona bark is produced in the United States. Our domestic requirements in the past have been obtained almost entirely from the Netherlands Indies. In 1940 total United States imports of the above specified sources of quinine were valued at about $4,119,000, nearly all from the Netherlands Indies, now in enemy hands. Larger shipments of the bark were received from Latin American countries in 1940 than in earlier years. Although cinchona and similar barks and quinine sulphate and related alkaloids have been bound on the United States free-entry list in previous trade agreements, they also are bound on the free list in the present agreement in the hope of further encouraging production in Latin America.

Other Peruvian agricultural commodities that the agreement binds on the United States free list, either because the United States does not produce them at all or does not produce them in quantities sufficient to supply its own needs, include coffee,[1] guano, crude barbasco (or cube) root, oiticica oils (expressed or extracted), goatskins and kidskins, unground ginger root not preserved or candied, tamarinds, and crude pyrethrum. Of these commodities, guano, pyrethrum, and oiticica oil had not previously been bound on the free list.

Flax

The provisions of the agreement respecting United States imports of flax, including straw, tow, and noils, consist simply in binding the existing rates of duty (table 7). The duty had previously been reduced in the agreements with Canada and the United Kingdom (effective January 1, 1939) by the maximum amount permitted in the Trade Agreements Act.

[1] This action does not affect imports of coffee into Puerto Rico.

Conditions of climate and soil suitable for flax-fiber production exist in many parts of the world, including the United States. Because of economic factors and specialization, however, about 75 percent of world production in recent years has been in the Soviet Union and nearly all the rest in other European countries. Fiber production in the United States is small, the flax produced here being grown mostly for seed rather than for fiber. Because of this small fiber production, domestic needs of the United States have been met primarily by imports. The war in Europe has made it difficult for the United States to obtain its requirements from normal sources, with the result that usable fiber from any source now finds a relatively good market in the United States. Little fiber was imported into the United States from Latin America before 1940, but in that year Chile, Peru, and Argentina supplied substantial quantities. Imports from Peru alone, including imports of tow and noils, were valued at about $70,900.

The binding in the present agreement of the existing United States duties on flax straw, tow, and noils may encourage Latin American production to the point of supplying United States requirements more fully. Peru's first commercial plantings of fiber flax in 1939 produced approximately 74 tons of good fiber and about the same amount of subsidiary products, which were shipped to New York. Since that time the crops have been greatly increased. More recent crops have been in the neighborhood of 500 tons of fiber. Larger crops are expected in the years just ahead. A Government processing plant was established in 1939 and expanded in 1941.

Hemp

Fibers that the United States undertakes in the agreement to admit under lowered duties are hackled hemp, hemp, and hemp tow. The duty on hackled hemp is reduced 50 percent, from 3½ cents per pound to 1¾ cents; that on hemp (not hackled) and hemp tow from 2 cents per pound to 1 cent.

Hemp fiber, tow, and line are used in the manufacture of rope, twine, etc., and some hemp possessing special properties is used in threads for making and repairing shoes. Detailed figures on domestic production of hemp fiber are not readily available, but United States Government sources report that domestic production in 1939 met about half national requirements and that imports filled the remainder.[2] Imports of unmanufactured hemp (hackled and not hackled) that year amounted to 647 tons and were valued at nearly $203,000, most of it from Italy. Until 1940 Italy was by far the leading supplier of these imports, although smaller quantities came from Yugoslavia and Chile. Some were shipped (or transhipped) from the United Kingdom.

Under existing war conditions of reduced European shipments to the United States, of increased demand, and of reduction in the United States duty, production of hemp in Latin America may be stimulated. The Western Hemisphere, by utilizing its own resources, could make itself self-sufficient in the production of this commodity. Though hemp-fiber production in Peru at the present time is probably small, the Peruvian Government in 1941 took steps to arouse farmers' interest in the subject. The present reduction in the United States duty will probably act as a further stimulus to production.

[2] U. S. TARIFF COMMISSION. LATIN AMERICA AS A SOURCE OF STRATEGIC AND OTHER ESSENTIAL MATERIALS. U. S. Tariff Comn. Rpt. 144, 397 pp., illus. 1941. See p. 302.

Long-staple cotton

The agreement reduces the United States duty on long-staple cotton (1-1/8 inches or more) from 7 cents per pound, as provided in the tariff act of 1930, to 3½ cents per pound. During most of the 1920's all raw cotton entered this country free of duty. The bulk of the imports was of long-staple cotton and, at the same time, the United States was the world's leading exporter of short-staple cotton.

The agreement does not increase the annual over-all amount (45,656,420 pounds) of long-staple cotton that is permitted to enter the United States in any quota year (beginning September 20) under the Presidential proclamation of September 20, 1939. In fact, it specifically reserves the right of the Government to maintain or impose quotas in connection with governmental efforts designed to control production, market supply, or prices of like domestic articles. It does, however, bind this Government to request the United States Tariff Commission to make an investigation, under Section 22 of the Agricultural Adjustment Act, "with a view to consolidating the existing allocations by countries into a global quota equal to the sum of the present individual country quotas, thus allowing Peru and other countries to utilize fully the total amount permitted to be imported * * * "

Under the existing quota arrangements Peru is permitted to enter only 2,056,299 pounds of cotton (4,113 bales of 500 pounds each) in any quota year; and other foreign countries likewise are restricted to stipulated amounts - all of which add up to the over-all annual quota of 45,656,420 pounds (about 91,300 bales of 500 pounds). The Tariff Commission is now (June 1) conducting its investigation. Should it conclude that the existing country allocations can be consolidated into a global quota and the President issue a proclamation to this effect, Peru and other countries individually would no longer be guaranteed a specified part of the United States long-staple market. Instead, each country would be free to compete to the best of its ability for as much of the global quota as it could get in any one quota year. Once that quota was filled, all entries would cease until the next quota year.

One further point deserves mention in connection with the provisions of the agreement relating to long-staple cotton. The United States Department of Agriculture announced on April 24 that, acting through the Commodity Credit Corporation, it had agreed to purchase up to 200,000 bales of Peru's 1942 cotton crop, the quantity approximating the 1942 surplus. It was agreed, further, that the United States would purchase the surplus of each succeeding crop for the duration of the war.

Long-staple cotton is Peru's most important export crop, accounting in 1940 for well over half (by value) of the country's total agricultural exports. Because of its uniformity, roughness, and tensile strength, it is particularly suitable for the manufacture of underwear, part-wool textiles, cotton duck, and other strong fabrics. Production in 1941-42 was estimated tentatively at 339,453 bales (of 478 pounds), although it averaged 378,498 bales annually during the 5-year period 1934-35 to 1938-39. Ordinarily only about 10 percent of the crop is consumed domestically, the remainder being exported for the most part to Europe and the Orient. Under war conditions, however, these foreign markets are virtually closed. As Peruvian production centers in the irrigated valleys of the arid coastal plain - and this area is limited by marginal factors of production - there appears to be little possibility of a material expansion taking place in the planted cotton acreage.

United States production of long-staple cotton during the 1937-39 period averaged about 840,000 bales (of 500 pounds each). This was about 6 percent of the domestic production of all staple lengths (14,235,000 bales) during this pre-war period.

Alpaca, llama, and vicuña hair

Under the agreement the United States duties on alpaca, llama, and vicuña hair are reduced by 43 to 50 percent, depending upon the condition in which it is imported (table 7). No such hair is grown in the United States, and imports do not compare directly with domestic wool. This hair is used in making so-called luxury outer wear or is blended with wool in making less expensive specialty weaves of types that cannot be obtained from wool alone. Domestic consumption of this hair normally constitutes a very small part of the total consumption of apparel wool and hair. Apparent consumption of this hair in 1939 was less than 1 percent of that of apparel wool. Imports in 1940 were valued at $1,232,252, most of it in the grease or washed, of which Peru supplied 81 percent.

Pyrethrum

Pyrethrum is made from the dried flower heads of several different species of chrysanthemums. It is used principally in the manufacture of insecticides for killing household pests. In recent years before the war, United States imports consisted chiefly of the crude, unprocessed variety and came principally from Japan. While none of these imports came from Peru, the Peruvian Government is now subsidizing farmers to produce pyrethrum, and some production on a commercial scale is anticipated. To assure the United States of supplies from within the Western Hemisphere and to encourage Peruvian production, the present trade agreement binds crude, unprocessed pyrethrum, not containing alcohol, on the duty-free entry list. It reduces by 50 percent the duty on the processed product (table 7). Crude pyrethrum has not been bound on the free list in any previous agreement. In 1940 the United States imported approximately $3,000,000 worth of pyrethrum, nearly all of it in the crude form.

Barbasco

The duty on processed barbasco root, also known as cube or timbo root, is reduced by half. It comes from several tropical plants that are native to the northern part of South America. Because of its rotenone content, it goes chiefly into preparations used by farmers and housewives to eradicate insects. It is imported both in its crude state and in a processed form. Since 1936 Peru has been the most important supplier of the crude product. In 1939 imports of the crude produce from Peru exceeded imports of both the crude and the ground root from all other countries. The present agreement not only reduces the duty on the processed product but binds the crude, or unmanufactured, product on the free list.

Coca leaves

In the agreement the United States also reduces its duty on coca leaves from 10 cents per pound to 5 cents per pound. Coca leaves are the raw materials for the medicinal alkaloid cocaine and are not to be confused with the cocoa or cacao bean, the source of chocolate and cocoa products. Besides their cocaine content, coca leaves contain certain other constitutents that are used in the preparation of soft drinks. Coca leaves are obtained from a tropical shrub or small tree native to Peru and from trees grown in the Netherlands Indies. Most of the United States imports in recent years have come from Peru.

Ginger root

Ginger is the washed and dried root of a plant that grows widely in the moist Tropics. In the ground form, it is used as a flavor in food, as a stimulant in medicine, and as the basis for ginger ale. When dried or preserved, it is used as a confection. The crude root is not produced commercially in the United States, although the candied root is prepared extensively by domestic processors from the imported crude product. Importations of the natural ground root in recent years have been inconsequential. Most of the natural and unground and of the candied and preserved product have come from the Far East, although substantial amounts have entered from Jamaica. The present agreement not only binds the natural unground root on the free list but also reduces by half the duty on the ground natural root and on the unground preserved or candied product. These provisions should encourage ginger production in the moist Latin American Tropics.

Sugar

The agreement also reduces the duty on sugar from all full-duty countries by 50 percent - from $1.875 per 100 pounds of 96° sugar to $0.9375. This preagreement rate from full-duty countries in 1940 was equivalent to a calculated 148 percent ad valorem.

Since the passage of the Jones-Costigan Act in 1934, imports of sugar into the United States have been regulated by quotas. The quota established for entries from Peru averaged 5,711 short tons (raw value) annually during the 4-year period 1937-40. Because Peru was given the opportunity of filling certain portions of unfilled full-duty quotas established for other foreign countries and the Philippine Islands, actual imports from Peru amounted to 53,682 short tons in 1937; 56,256 tons in 1938; 38,599 tons in 1939; and 13,250 tons in 1940.

All import quotas on sugar (as provided in the Sugar Act of 1937) were suspended by the President on April 13, 1942, in order to make additional supplies of sugar potentially available to domestic consumers during the emergency. For as long a period as the import quotas are held in abeyance, the present reduction in duty will encourage foreign producers to export to the United States.

EFFECTIVE DATE OF AGREEMENT

The United States-Peruvian agreement will become effective 30 days after its proclamation by the President of the United States and by the President of Peru, or after the later one of the two proclamations. It will continue in force for 2 years, subject thereafter to an automatic extension for an indefinite period until its termination on 6 months' notice by one of the contracting parties.

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Table 6.–*Provisions of agreement affecting Peruvian agricultural imports from the United States (signed May 7, 1942)*

COMMODITY (ABBREVIATED DESCRIPTION)	ORDINARY RATES OF PERUVIAN DUTY				DUTY[1] ON IMPORTS FROM THE UNITED STATES IN 1940 CALCULATED AS AN AD VALOREM EQUIVALENT		TREATMENT OR EXTENT OF REDUCTION	1940 PERUVIAN IMPORTS FROM THE UNITED STATES	
	BEFORE AGREEMENT		UNDER AGREEMENT		BEFORE AGREEMENT	UNDER AGREEMENT			
	Soles per gross kilogram	*Cents per pound*[2]	*Soles per gross kilogram*	*Cents per pound*[2]	*Percent*	*Percent*	*Percent*	*Soles*	*Dollars*[2]
Oats prepared as a foodstuff with net contents not over 2 kilograms (4.41 pounds)	0.06	0.441	0.04	0.294	14	8	33-1/3	127,583	20,681
Canned asparagus, soups, baked beans, and corn	0.24	1.765	0.12	0.882	21	11	50	[3]144,316	23,394
Fresh apples from September 1 to the last day of February	0.02	0.147	Free	Free	5	Free	[4]100	[5]64,092	10,389
Fresh pears from July 1 to December 31	0.02	0.147	Free	Free	5	Free	[4]100		
Fresh plums from May 1 to October 31	0.02	0.147	Free	Free	5	Free	[4]100		
Walnuts	0.072	0.529	0.036	0.265	8	4	50	[6]91,784	14,878
Dried fruits in boxes	0.30	2.206	0.15	1.103	59	30	50	83,191	13,485
Dried fruits in other containers and shelled nuts	0.54	3.971	0.27	1.985	30	15	50	17,982	2,915
Dried fruits, stoned or cut	0.36	2.647	0.18	1.323	27	14	50	40,714	6,600
Canned fruits	0.30	2.206	0.15	1.103	35	18	50	132,265	21,440
Wheat flour	0.05	0.368	0.05	0.368	18	18	Bound	511,111	82,851
Flour of oats, rye, corn, rice, and farina with net contents not over 2 kilograms	0.072	0.529	0.04	0.294	14	8	46	17,916	2,904

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[1] Exclusive of supplementary charges; includes only basic duties.

[2] Converted at the rate of 1 sol equals 16.21 cents.

[3] Includes imports of all canned legumes and vegetables.

[4] During the period herein specified.

[5] Includes imports of all classes of fresh fruits.

[6] Reported in Peruvian import statistics as "dried fruits: coquitos and walnuts."

TABLE 7.–*Provisions of agreement affecting United States agricultural imports from Peru exclusive of bindings on the duty-free list (signed May 7, 1942)*

COMMODITIES RECEIVING DUTY REDUCTIONS

PARAGRAPH NUMBER, TARIFF ACT OF 1930	COMMODITY (ABBREVIATED DESCRIPTION)	UNITED STATES DUTY		DUTY ON IMPORTS FROM ALL COUNTRIES IN 1940 AS AN AD VALOREM EQUIVALENT		TREATMENT OR EXTENT OF REDUCTION	1940 (PRELIMINARY) UNITED STATES IMPORTS FOR CONSUMPTION	
		BEFORE AGREEMENT	UNDER AGREEMENT	BEFORE AGREEMENT	UNDER AGREEMENT		FROM ALL COUNTRIES	FROM PERU
				Percent	*Percent*	*Percent*	*Dollars*	*Dollars*
35	Pyrethrum (or insect flowers) and derris, tube or tuba root, advanced in value or condition, not containing alcohol.	10 per cent ad valorem	5 percent ad valorem	10	5	50	1,069	-
35	Barbasco (or cube root) advanced in value or condition, not containing alcohol.	5[1] or 10 percent ad valorem	5 percent ad valorem	5[1] or 10	5	[1]50	85,896	-
36	Coca leaves	10 cents per pound	5 cents per pound	53	26½	50	156,340	116,419
501	Sugars, tank bottoms, sirups of cane juice, melada, concentrated melada, concrete and concentrated molasses, and all mixtures containing sugar and water.	$1.875 per 100 pounds of 96° sugar	$0.9375 per 100 pounds of 96° sugar	148	74	50	1,441,223	716,306
778	Ginger root, candied or otherwise prepared or preserved.	20 percent ad valorem	10 percent ad valorem	20	10	50	144,436	-
781	Ginger root, not preserved or candied, ground.	5 cents per pound	2½ cents per pound	-	-	50	-	-
783	Cotton, having a staple length of 1-1/8 inches or more.	7 cents per pound	3½ cents per pound	41	20½	[2]50	4,240,934	104,562
1001	Hemp and hemp tow	2 cents per pound	1 cent per pound	13	6½	50	78,931	-
1001	Hackled hemp	3½ cents per pound	1¾ cents per pound	15	7½	50	36,255	-
1102(b)	Alpaca, llama, and vicuña hair:							
	In the grease or washed	34 cents per pound	18 cents per pound	70	35	47	1,046,464	1,003,138
	Scoured	37 cents per pound	21 cents per pound	9	4½	43	178,122	-
	On the skin	32 cents per pound	16 cents per pound	-	-	50	-	-
	Sorted or matchings, if not scoured.	35 cents per pound	19 cents per pound	36	18	46	7,666	-

COMMODITIES ON WHICH EXISTING DUTIES ARE BOUND

PARAGRAPH NUMBER, TARIFF ACT OF 1930	COMMODITY (ABBREVIATED DESCRIPTION)	BEFORE AGREEMENT	UNDER AGREEMENT	BEFORE AGREEMENT	UNDER AGREEMENT	TREATMENT OR EXTENT OF REDUCTION	FROM ALL COUNTRIES	FROM PERU
1001	Flax straw	$1.50 per ton[3]	$1.50 per ton	[4]3½	[4]3½	Bound	-	-
1001	Flax, not hackled	¾ cent per pound[5]	¾ cent per pound	2	2	Bound	1,005,307	54,171
1001	Flax, hackled, inc. "dressed line"	1½ cents per pound[6]	1½ cents per pound	2	2	Bound	554,738	-
1001	Flax tow and noils	½ cent per pound[7]	½ cent per pound	5	5	Bound	614,556	16,738

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[1] The duty on ground barbasco or cube root was reduced from 10 percent ad valorem to 5 percent ad valorem in the Venezuelan agreement, effective December 16, 1939.

[2] For further details, see page 290 of the text.

[3] Reduced from $3 per ton in Canadian agreement, effective January 1, 1939.

[4] On basis of 1939 imports.

[5] Reduced from 1½ cents per pound in agreement with the United Kingdom, effective January 1, 1939.

[6] Reduced from 3 cents per pound in agreement with the United Kingdom, effective January 1, 1939.

[7] Reduced from 1 cent per pound in agreement with the United Kingdom, effective January 1, 1939.

WARTIME FARM LABOR SUPPLY IN THE UNITED KINGDOM . . . . .

By Mary E. Long[*]

Vigorous plow-up campaigns and increased production drives to expand food production were begun in the spring of 1939. The greatest handicap to the attainment of their goals has been the lack of the necessary farm labor. Measures adopted so far have not kept pace with requirements. The wartime policy of increasing the cultivable area by approximately 6 million acres has created a labor demand far in excess of the declining potential supply of pre-war years. Table 1 shows the gradual decline in number of farms and farm laborers during the 1930's.

TABLE 1.–*Number of farms and farm laborers in the United Kingdom, 1929-39*

YEAR	FARMS	FARM LABORERS	YEAR	FARMS	FARM LABORERS
	Number	*Number*	*Number*		*Number*
1929	576,040	929,102	1935	548,840	823,421
1930	571,632	895,482	1936	542,647	788,631
1931	566,237	865,314	1937	537,866	776,872
1932	564,418	846,929	1938	530,246	729,391
1933	561,562	865,356	1939	524,905	744,835
1934	555,416	838,202			

[Gt. Brit.] Min. Agr. and Fisheries, Agr. Statis., pt. 1, 1938 and 1939.

During the first 8 months of the war very little action was taken to stem the loss of farm workers beyond the inauguration of "certain measures exempting so-called 'key' men from military service."[1] High urban wages, however, continued to reduce the farm-labor supply. In the latter part of April 1940, the Government Agricultural Wages (Regulation) Amendment Act was passed, establishing the machinery for the fixing of minimum farm wages throughout Great Britain by the creation of a Central Agricultural Wages Board.

The Minister of Labour and National Service by the Emergency Powers (Defence) Acts of 1939-40 was invested with the control and use of all the labor resources of the country. The Minister has the power to direct any person in the United Kingdom to perform any specified services, to require any person to register particulars about his occupational qualifications, to enter, supervise, and inspect premises, and to force employers to keep and produce for inspection such books and records as are considered necessary. Officers, termed "national service officers," are the chief representatives of the Minister in carrying out these regulations and are empowered to require persons to undertake work of national importance. In order to assist in determining the best use of the Nation's manpower, the Minister has set up a national Labour Supply Board, charged with working out solutions for the many complex problems of employment-market organization.[2]

[*] Office of Foreign Agricultural Relations.

[1] MURRAY, ALTON T. U. S. Cons. Voluntary Rpt. 330, 11 pp. Aug. 16, 1940. [Typewritten.]

[2] INTERNATIONAL LABOUR OFFICE. WARTIME MEASURES IN GREAT BRITAIN. Internatl. Labour Rev. 42: 261-265. 1940.

Minimum-wage rates have been established by regions since 1924 under the legislation covering agriculture, and the rates have been given statutory effect by orders issued by the Central Agricultural Wages Board. A national minimum wage is fixed by this Board, after consultation with the agricultural wages committees for the different areas and taking into account general economic conditions and the conditions of the agricultural industry. The Board is empowered to reconsider and alter the national minimum wage, first fixed at 48s. a week.[3]

In the fall of 1941 the Central Agricultural Wages Board increased farm wages to a minimum of 56s. as the result of a compromise with the Agricultural Union, which demanded a 60s. minimum. Further pressure, however, forced the Government to raise the minimum wage to 60s., effective December 28, 1941. This new minimum wage exceeded the previous minimum by 25 percent and represented an increase of over 50 percent above pre-war farm wage rates. For the first time the agricultural laborer's importance in the war effort was recognized. It was generally realized that the wage increase would not inflict any hardship on the farmer, as food prices has been rising and would no doubt continue to rise to some extent despite the Government's efforts at control. The Government's policy of increased subsidies to the farmer to assure increased food production also made it possible for the farmer to meet the demands of farm laborers for wage increases on a level at least comparable with the minimum wages of partially skilled industrial workers.

A labor-conscription order passed in June 1940 prohibited labor contractors from hiring farm workers for other than agricultural employment, and farm workers employed in industry ceased to be eligible for industrial employment if they became unemployed.

A new schedule governing the procedure of selecting men for the military service was announced by the Ministry of Labour on April 10, 1941, and has had considerable effect on the maintenance of sufficient agricultural workers. The ages of reservation in many occupations were raised, and a change of principle in reservation for many occupations was introduced. The schedule prior to this time had been based entirely on occupation and age. According to the new schedule, the selection of men for military service is based not only on occupation but also on the type of work performed. This schedule affected practically all of the occupational groups of agricultural workers, with the exception of those in poultry raising or fruit farming.[4] These two branches are regarded as adapted primarily to the use of female labor.

Since the outbreak of war, the United Kingdom has been confronted with the difficult problem of the redistribution of labor, which has been particularly accentuated in agriculture because of the scarcity of farm laborers in many sections even in prewar years. In an endeavor to solve this problem, the Government has from time to time made various arrangements for the mobilization and distribution of labor to further the war effort. One of the main sources of agricultural labor has been the mobilization of women.

Before the end of September 1939, recruitments for the Women's Land Army numbered over 1,000. The increase in women laborers is well illustrated by the fact that in

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[3] U. S. BUREAU OF LABOR STATISTICS. MINIMUM WAGE FOR BRITISH AGRICULTURAL WORKERS. U. S. Bur. Labor Statis. Monthly Labor Rev. 51: 418-419. 1940.

[4] MINISTRY OF LABOUR AND NATIONAL SERVICE. SCHEDULE OF RESERVED OCCUPATIONS AND PROTECTED WORK, REVISION 10TH APRIL, 1941. 145 pp. 1941. London. See pp. 3-11.

June 1940 the entire membership of the Women's Land Army totaled 8,000, whereas in November 1941 Northern Ireland alone had 18,000 Women's Land Army laborers engaged in agriculture. Their chief activities are the training of women in agricultural duties and locating them on farms. Most of the women and girls, especially in 1939 and 1940, were engaged in work in the dairy industry. Considerable emphasis was placed on their use in the promotion of the program of increased milk production in 1941.

Training of the Women's Land Army began in October 1939. The work covered milking cows, grooming and harnessing horses, picking and packing fruit, plowing, harrowing, preparation of seed for planting, use of farm implements with horses in the fields, various kinds of harvesting and threshing work, and feeding livestock. On many of the farms during the 1941 cultivation season much of the plowing, planting, and cultivation was carried on successfully by girls trained in the use of tractors.

This type of labor, on the whole, however, has been limited to small farms that generally required only one or two temporary workers and the farmer found it difficult to secure experienced male labor, or to farms specializing in fruit growing, dairying, or poultry raising.

In recent months approximately 5,000 Italian prisoners of war have been made available to farmers.[5] Prisoners may either "live in" on the farms for performance of regular farm work or may be housed in nearby hostels conveniently located to the principal crop-growing areas. This program is applicable only to the so-called good-conduct prisoners who are accustomed to agricultural work or have demonstrated their ability to perform agricultural duties.

Farmers employing prison labor must pay at the rate of 40s. a week for their services during the first 3 months and 48s. a week thereafter. From this amount 21s. a week may be deducted for board and lodging. In the event the prisoner is to be housed on the farm, suitable accomodations either in the farmhouse or in another farm building and food comparable with that furnished civilian farm labor must be provided by the farmer.[6]

A program for the utilization of schoolboy labor during the harvesting season was in operation as early as 1939 through the cooperative efforts of the Ministry of Agriculture, the county War Agricultural Committees, the Headmasters' Conference, and the Incorporated Association of Headmasters.

Farming camps for the older boys have been organized in many rural areas located conveniently to farm establishments. The size of the camps vary from 6 to 25 boys, mostly 15 and 16 years of age and under the direction of an adult leader. Most of the camps are housed in temporary buildings covered with canvas, although in some localities barns and other farm buildings have been converted to provide satisfactory accommodations. In 1940 these camps totaled approximately 250, providing facilities for 8,000 boys.

In the early days of the program, the amount of remuneration given schoolboys was agreed upon by the farmers and farm workers' unions. In the spring of 1941, wage legislation was enacted for England, Wales, and Scotland to govern the minimum wages paid for temporary and inexperienced help given by school children. Increased efforts were also made in 1941 by the Ministry of Agriculture to increase this source of harvest labor, the Government offering to provide schools with free camp equipment if necessary.

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[5] FARMERS WEEKLY [LONDON]. ITALIAN PRISONERS TO "LIVE IN." MINISTRY'S CONCESSION FOR GOOD CONDUCT MEN, EXPERIMENTAL SCHEME... Farmers Weekly [London], Jan. 9, 1942, p. 17.

[6] COUNTRY GENTLEMEN'S ASSOCIATION. ITALIAN PRISONERS OF WAR. Estate Mag. 42: 61. 1942.

The greater part of the labor performed by school children, of course, is performed during the holiday periods. When harvesting crops might interfere with the regular school program, the amount of work on the farms is limited to 1 or 2 half days a week and must be confined to farms within easy reach of the school.

Another means of increasing farm labor was by the organization of the Voluntary Land Club. The club is comprised of professional people, office workers, bank clerks, shop assistants, etc., who have organized themselves into so-called farm gangs to perform farm labor on week ends when free from their regular occupations. Much semiskilled farm labor has been performed by them.

The farm-labor shortage became still more acute at the beginning of 1942 when the British Government announced its intention to recruit for the armed forces approximately 10,000 farm workers who had previously been deferred, all in the group under 25 years of age. A simultaneous appeal was made to farmers by the Ministry of Agriculture to replace these men by members of the Women's Land Army.

The housing of agricultural laborers throughout the United Kingdom has been carried on satisfactorily in spite of wartime building restrictions. The Government through the cooperative efforts of the Ministry of Agriculture and the Land Improvement Company has made possible the erection of farm workers' houses in many rural districts where housing shortages were apparent as a result of the diversion of labor from urban centers to farms. Hostels for members of the Women's Land Army and temporary living quarters for Italian prisoners and soldiers of the armed forces have been erected in many rural sections easily accessible to the farms.

Many English courts in 1940 and 1941 granted decisions in favor of landlords for the evacuation of nonessential rural tenants from farm cottages and other farm buildings suitable for housing agricultural and estate workers under contract to perform labor necessary for the operation of the farm during the war.

On the whole, the United Kingdom's agricultural-production program for the past 2 years has been successful despite the fact that the labor supply has been very inadequate and in large part has been derived from supplementary groups composed of individuals entirely unfamiliar with farm work. In addition to the efforts of numerous skilled farm laborers deferred from serving in the armed forces, invaluable service to farmers has been performed by the soldiers during harvest periods, the Women's Land Army, which totaled 25,000 members in England and Wales at the beginning of 1942, mixed farm gangs, composed of men beyond draft age, conscientious objectors, retired farmers, old-age pensioners, schoolboys, and Italian prisoners.

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